

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

(The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.)

No. 2281.—Vol. XLIX.

LONDON, SATURDAY, MAY 10, 1879.

WITH SUPPLEMENT. PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

Business negotiated in Stocks and Shares not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded regularly on application), containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

50 Chapel House, £1 5s.	20 Hultafall, £1 15s.	10 Richmond, £1 15s. 9d.
70 Chontales, 9s.	50 Javali, 6s.	50 Rookhope, 4s.
20 Colorado, £1 15s. 3d.	25 Leadhills, £2.	25 Santa Barbara, £2 8s. 9d.
20 East Van, £1 15s.	20 Morfa Du, 15s.	10 St. Harmon.
15 Eberhardt, £4 7s. 6d.	25 N. Zeal. Kap., 10s. 6d.	10 Tankerville, £3 10s.
20 Frontino, £2 7s. 6d.	100 Penarth, 2s. 3d.	40 Van Consoled and Glyn
30 Glenroy, 9s.	200 Penarth, 2s.	Amalgamated, 6s.
25 Herodfoot, £3 1/2.	35 Parys Moun., 10s.	25 W. Assheton, £1 2s. 6d.

* * * SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

BUSINESS in all the leading Tin Shares.

RAILWAYS—SPECIAL BUSINESS.

FOREIGN BONDS—SPECIAL BUSINESS.

Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE LONDON.

ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.

RAILWAYS, BANKS, FOREIGN AND COLONIAL BONDS, TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS. Accounts opened for the Fortnightly Settlement.

A Stock and Share List free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

10 Aberllyn.	20 East Van, 35s.	50 Morfa Du, 17s. 6d.
50 Birtsey, 12s. 6d.	20 East Pool, £10 1/2.	25 New Quebrada, 38s.
25 Bettwys-y-Coed.	15 Eberhardt, £4 6s. 3d.	100 Nouveau Monde.
70 Bodidris, 21s. 6d.	20 Frontino, £2 6s. 3d.	50 Pankora, 7s. 6d.
30 Blue Tent, £2 1/2.	5 Great Laxey, £15 1/2.	70 Parys Moun., 10s. 3d.
40 Chapel House, 25s.	60 Glenroy, 9s.	100 Penarth, 2s. 3d.
10 Cape Copper, £27 1/2.	20 Great Holway.	25 Richmond, £7 18s. 9d.
3 Carn Brea, £20 1/2.	25 Hultafall, 43s.	10 Roman Grav., £9.
25 Canada Gold.	10 Herodfoot, £2 1/2.	15 So. Frances, £2 1/2.
100 Chontales, 9s. 6d.	40 Javali, 5s. 6d.	10 Tankerville, £3 1/2.
25 Colorado, 35s.	40 Kapanga, 9s. 6d.	5 Van, £17 1/2.
10 Don Pedro, 15s. 9d.	25 Leadhills, 39s. 6d.	10 Wheel Grenville, £4.
15 Devon Consols.	50 Lead Era, 30s.	20 Wheel Peavor, £2 1/2.
2 Dolocath, £27 1/2.	40 Marke Valley, 12s.	50 West Assheton, 19s. 6d.
	10 Mellanear, £2 1/2.	

MINES.—Many good purchases may now be made, especially in Tin and Lead Shares, some of which (now returning good dividends) are likely to have a considerable rise, besides paying exceedingly well as an investment. Shares in several SOUND PROGRESSIVE MINES may also be secured now on favourable terms, and will probably double their present value within the next few months.

A carefully selected List on application.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

A complete and reliable List of all the Leading Investments (published on the first of each month) may be obtained free on application to

WILLIAM HENRY BUMPUS, SWORN BROKER.

Office: 44, Threadneedle Street, London, E.C.

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C.

STOCK AND SHARE DEALERS. Are prepared to do BUSINESS either as BUYERS or SELLERS in the following SHARES:—

CWM BRWYN.	RYDALUN.
DON PEDRO.	WEST WYE VALLEY.
PANT-Y-MWYN.	

PANT-Y-MWYN and RYDALUN.—We have important news to communicate respecting these two Mines, having this week received a report thereon from an eminent expert on mining properties. Particulars on application.

DON PEDRO.—There is a heavy demand for these shares, and we would strongly advise their purchase.

BANKERS: London and Provincial.

MR. E. J. BARTLETT, BRITISH AND FOREIGN STOCK AND SHARE DEALER,
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MR. JOHN BATTERS, STOCK AND SHARE DEALER,
transacts Business in Stock Exchange and Mining Securities. Special information to Investors in Lead Mines, also in Swedish, Canadian, and other securities. 4, AUSTINFRIARS, LONDON, E.C.

MR. J. ROSEWARNE, 3, COPTHALL BUILDINGS, LONDON, E.C.
Advice given respecting Richmond, Colorado, and Eberhardt. Money advanced on Mining Shares, or any other good Securities.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER,
9, GRACECHURCH STREET, LONDON, E.C. (Established 25 years) ALL BUSINESS TRANSACTIONS FREE OF ANY CHARGE FOR COMMISSION.

Notice to Investors and Speculators.

Mr. BUDGE has SPECIAL BUSINESS in—

20 Aberdaunt, 4s. 6d.	50 B. Chiverton, 21s. 6d.	25 Penhalls.
50 Blaen Caelon, £2 18 9	45 Fronchoy, £2 8s. 9d.	100 Parys Mountain, 10s
100 Bodidris.	35 Glasgow Caradon.	200 Penarth, 2s. 3d.
100 Chapel House.	20 Gawton, 6s. 6d.	120 Tamar Silver-lead.
50 Cakemore, £2.	20 Glenroy, 10s.	10 So. Frances, £2 1/2.
120 Cambrian.	50 Herodfoot.	5 Tincroft, £10 1/2.
70 Don Pedro.	40 Hington Down, 4s 6d	50 W. Chiverton.
8 Dolocath, £28.	35 Lead Era, 30s.	20 Wheel Ury, 10s.
75 Devonport and Tiver-	40 Marke Valley, 14s.	60 West Wye Valley.
ton Brewery.	10 Minera.	30 Wheel Kitty.
100 Exchequer.	35 Morfa Du.	35 West Frances, £3 1/2.
50 East Caradon, 8s. 6d.	35 Monydd Gwddu.	

BUYERS or SELLERS of any of the above, or holders of any Stocks or Shares not readily marketable, will do well to apply to Mr. BUDGE.

UNITED STATES AND COLONIAL MINES.

IMPORTANT INFORMATION REGARDING THE ABOVE. BUYER and SELLER of SHARES at the close Market Price of the day. SHAREHOLDERS and INVESTORS may rely on all business being punctually and faithfully carried out.

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[Established 1848.]

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Great Laxey.	Wheal Peavor.	Hultafall.
Herodfoot.	West Assheton.	Hudson's Bay.
Leadhills.	Colorado.	Last Chance.
Ottoman Bank.	Chontales.	Panicillo.
Parys Mountain.	Don Pedro.	Port Phillip.
Roman Gravel.	Eberhardt.	Richmond.
South Frances.	Frontino.	

BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, 5, BIRCHIN LANE, LONDON, E.C.

FORTNIGHTLY ACCOUNTS opened, on receipt of the usual "cover," in Railways Home and Foreign, Mining Shares, Foreign Bonds, and certain Miscellaneous Securities.

"THE WEEK."—A SEPARATE EDITION from that which appears in the Mining Journal is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

BANKERS: London and Westminster, Lothbury.

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Mr. THOMPSON transacts business in every species of Stock Exchange and Mining securities.

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can SELL the following SHARES at prices annexed:—

40 Bodidris.	20 Frontino, £2 2s. 6d.	50 Morfa Du, 14s. 6d.
20 Blaen Caelon, £3 1/2.	20 Fronchoy, £2 1/2.	10 Rhydalun, £1 10s.
25 Cape Copper, £27 1/2.	25 Great Holway.	20 Richmond, £7 17s. 6d.
Chapel House, £1 2s. 6d.	10 Great Laxey, £15.	15 Roman Grav., £9.
25 Colorado, £1 16s. 3d.	10 Grogwinlon, £3 5s.	100 Rosa Grande, 2s. 3d.
50 Chontales, 6s. 3d.	10 Herodfoot, £2 5s.	55 So. Roman Grav., 1s 3d
25 Cakemore, £2 1/2.	75 Javali, 6s.	5 St. Harmon Lead (off
5 Devon Cons., 30s.	20 Leadhills, £1 17s. 6d.	wanted).
2 D'Eresby Mountain	40 Last Chance, 9s.	20 Tankerville, £3 1/2.
(offer wanted).	20 Lead Era.	50 Tamar Sil.-Lead, £1 1/2
50 Don Pedro, 16s.	5 Minera, £10 10s.	5 Van, £18
20 East Van, £1 13s. 9d.	25 New Quebrada, £1 1/2.	10 Wye Valley (off. wds.)
10 Eberhardt, £4 7s. 6d.	80 Port Phillip, 9s. 3d.	30 Yorks Pen. Pref., £1 1/2.
60 Exchequer, 4s. 3d.	75 Penarth, 2s. 3d.	
50 Flagstaff, 5s.	150 Penarth, 2s.	

Shares Bought and Sold at net prices. Telegrams promptly attended to.

MR. CHARLES THOMAS, MINING AGENT, STOCK AND SHARE DEALER,
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SPECIAL BUSINESS in—

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Roman Gravel.	Postarena.	Van.
Gorsedd and Merilyn.	Talybont.	

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LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

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Chapel House, £1 5s.	Hultafall, £2 2s.	Roman Gravel, £5 2s. 6d.
Devon Consols, £1 1/2.	Leadhills, £1 15s. 9d.	South Frances, £9.
East Van, £1 10s.	Marke Valley, 12s.	West Frances, £5 10s.
Glenroy, 8s.	Pandora, 8s.	West Peavor, £2 5s.
Herodfoot, £2 10s.	Rhydalun, £12 10s.	Wheal Ury, 7s.

MR. JOHN RISLEY, STOCK AND SHARE BROKER,
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Established 20 Years.

Business transacted for clients on commission (only). Wheal Peavor, West Peavor, Trelawny, Roman Gravel, Parys Mountain, South Frances, and Lead Era specially recommended for investment.

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6 D'Eresby Mountain	50 Cwm Brwyno, £1 5s.	4 Glyn, 10s.
£31 10s.	100 Bettwys-y-Coed, £1.	10 United Discount Cor-
100 Chapel House Colliery	100 Lead Era, £1 1/2.	poration, £2.
£1 2s. 6d.	50 Hultafall, £1 1/2.	

30 Monydd Gwddu, offer wanted: 100 Great D'Eresby, £5 paid (Mineral Corporation), offer wanted.

SPECIAL BUSINESS in Hornachos, Colorado, Canada Gold Company, Richmond, Don Pedro, Temple, and Talybont.

Address, H. WILKINS and Co., 3, Heybourne Villas, Tottenham.

SOUTH DARREN.

GOOD OPPORTUNITY FOR INVESTMENT.—FOUR HUNDRED AND FIFTY SHARES, or any part thereof, TO BE SOLD, at 35s. 3d. per share in this excellent mine, now just on the EVE of PAYING DIVIDENDS. Will probably soon be worth MORE THAN DOUBLE. Apply to A. CORNWALL, 7, St. George's-road, Kilburn, N.W.

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WANTED, TO ISSUE, £3750 WORTH OF £1 SHARES, out of 10,000, for which £150 will be allowed in cash. Particulars and reports, and every information, by applying to "F. R. A. H.," Goginan, R. S. O., Cardiganshire.

WANTED, by Advertiser, whose articles have expired, a SITUATION—CIVIL or MINERAL ENGINEER and SURVEYOR, at home or abroad (the latter preferred). Good references. Salary not so much as subject as opportunity of obtaining further practical experience. Address, J. BARKS, Talgwynedd, near Dwyran, Anglesea, R.S.O.

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N.B.—All Mines personally inspected before being recommended. TO LET.—ONE of the most highly mineralised LEAD ORE SETTS in North Wales, 1/2 mile long on course of the lode, and 1/2 mile wide. Three years' lease note, and agreement for 21 years. Full particulars on application.

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I have been long acquainted with the principal Coal and Ironworks in the North, with the Slate Quarries in North Wales, and for many years was Chief Engineer of the Tharais Mines Works and Railway in Spain.

THE Missouri Lead Mining and Smelting Company, Limited.

INCORPORATED WITH LIMITED LIABILITY UNDER THE COMPANIES' ACTS, 1862, 1867, 1877.

CAPITAL £90,000, IN 9000 SHARES OF £10 EACH.

The Shares are divided into 4500 Preference or A Shares, and 4500 Ordinary or B Shares.

The Preference or A Shares are entitled in each year to a Preferential Dividend of 10 per cent. out of the sum available for Dividend in the year, after which the Ordinary or B Shares are entitled to Dividend for the year up to the same rate, further profits to be divided *pro rata* between all the shareholders alike.

The preference of A over B Shares to continue until a sum equal to the full amount of the capital represented by the A Shares shall have been paid in dividends, after which this preference will cease, and all Shares will rank alike.

The Ordinary or B Shares will be issued to the vendors as fully paid in part payment of the purchase-money.

THE DIRECTORS INVITE SUBSCRIPTIONS FOR THE 4500 PREFERENCE or A SHARES, payable as follows:—£1 on application, £3 on allotment, £3 one month after allotment, and £3 three months after allotment.

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GEORGE HOPKINS, Esq., Chairman of the Richmond Consolidated Mining Company (Limited).

EDWARD BOWER, Esq., Director of the Richmond Consolidated Mining Company (Limited).

PETER WATSON, Esq., Director of the Great Laxey Mining Company (Limited); Chairman of the Devon Great Consols Company (Limited), &c., &c.

DILLWYN PARRISH, Esq., Director of the Liverpool United Tramways and Omnibus Company (Limited).

FRANCIS A. SANDS, Esq., Director of the Virginia Lead Mining Company, Missouri.

SOLICITORS—Messrs. MAYHEW, SALMON, AND WHITING, 30, Great George-street, Westminster.

BANKERS—THE ALLIANCE BANK (LIMITED), Bartholomew-lane, London, E.C.

THE BANK OF COMMERCE, St. Louis, Missouri.

CONSULTING ENGINEER—THOMAS SOPWITH, Esq., Memb. Inst. C.E., 6, Great George-street, Westminster.

SECRETARY—CHARLES AKERS, Esq.

AUDITORS—Messrs. BROOM, SON, AND HAYS, 53, Coleman-street, E.C.

OFFICES,—30, GREAT GEORGE STREET, WESTMINSTER, S.W.

This company has been formed for the purpose of acquiring and working the Virginia, St. Clair, and Piney Lead Mines, situate in the State of Missouri, United States of America, about five miles distant from the town of St. Clair, on the St. Louis and San Francisco Railway, fifty-five miles distant from St. Louis, one of the best lead markets in the United States; and for the other purposes stated in the Memorandum and Articles of Association.

EXTENT OF PROPERTY.

The property to be acquired by the company consists of the Virginia Mine, comprising the whole of Section 16, Township 41, Range 1 East, Franklin County, State of Missouri, which, according to the official County Survey, is one mile square, and contains 640 acres; the St. Clair Mine, which adjoins the Virginia on the north (the St. Clair Lode is half-a-mile in length, and a direct continuation of the Virginia Lode), and contains 200 acres or thereabouts; and the Piney Mine, situated west of the Virginia, comprising an area of about 170 acres. The properties altogether embrace an area of about 1000 acres, most of which is covered with a fine growth of virgin timber.

TITLE.

The property is all freehold. The land upon which the Virginia Mine is situated was granted by Act of Congress to the State of Missouri for educational purposes, and under the provisions of a law of the State it was purchased by the present owners, who hold a patent or conveyance for the same direct from the State. The mine is free from all rents and royalties. The Piney and St. Clair Mines are also freehold, and likewise free from rents and royalties.

MINERAL RESOURCES.

The mineral resources of the property are of an exceptional character. The Virginia Lode runs from north to south entirely through Section 16, and also through the St. Clair Mine adjoining, forming a continuous lode about one mile and a half in length. The engineers and experts who have inspected it pronounce it to be a true fissure vertical vein, averaging 3 ft. in width, yielding a very superior class of lead ore. Three samples of ore promiscuously selected from the mine were assayed in 1876 by Messrs. Johnson, Matthey, and Co., assayers and melters to the Bank of England, Her Majesty's Mint, &c., the result of which was a produce of 82 per cent. of lead. The mine has been examined and reported on by eminent mining engineers and experienced English mining captains, and they all agree in pronouncing it one of great value.

Professor G. C. SWALLOW, for many years State Geologist of the State of Missouri, submitted a report on the Virginia Mine in 1871, in which, after giving a full description of the property, he says:—"It is true no one can tell with absolute certainty the extent of the unworked part of any mine, but on true veins like the Virginia Mine the experience of all past miners gives certain results upon which we may rely with tolerable certainty. These results show that the Virginia Mine will continue down indefinitely lower than pick or drill will ever reach, and that it will become richer in proportion to the depth reached."

THOMAS SOPWITH, Esq., Mining Engineer, Memb. Inst. C.E., of England, recently reported on the Virginia Mine, and under the head of "Mining and Mineral Indications" he says:—"The Virginia Mine is situated on an undoubted lode or vein averaging about 3 ft. in width, with a mean direction of 10° west of north, and underlying or dipping to the east about 6 in. in a fathom (1 in 12), or about 5° from the vertical. The lode is well defined, and carries its course continuously in nearly a straight line over a wide range of country." Mr. Sopwith also states:—"According to present indications and past experience there is every prospect of the lode continuing productive in depth, and turning out large quantities of ore when properly explored and developed. Operations on an important scale have been conducted in various parts of the mine. Several shafts have been sunk to depths varying from 10 to 60 fms., in most of which lead ore has been found in remunerative quantities. From a careful examination of these workings the lode appears strong and productive, offering great promise of the mine becoming when properly opened out one of the largest and most productive in Missouri."

Capt. JOSEPH BROAD CHAMPION, of Cornwall, a mining captain of great experience and a man of high reputation, is now in charge of the mine, and has resided there since April, 1878. He has submitted several reports on the property since that date, all of which are most favourable. In a report dated April 12th, 1878, he says:—"I first turned my attention to the Virginia Lode, which is a true fissure vein of a marked and persistent character, and boldly developed throughout. The composition of this lode is all that can be desired, and practical experience demonstrates that the formation presented leads to rich deposits of ore at a moderate depth. The mineral is very pure, yielding 84 per cent., and is free from all foreign substances detrimental to smelting. From my examinations and explorations of your property I feel confident that with careful and judicious management the Virginia Mine will return large quantities of rich galena, and that no lead mine in this or any other country will surpass it in value."

Besides the north and south lode a lode has been opened up within the last two years on the south-eastern portion of the property, running east and west, and designated as the Bald Hill Lode, of which Capt. CHAMPION says:—"Bald Hill is situated on the south-east portion of the Virginia Mines, and rises in a steep bluff some 200 ft. above the Meremac river. I carefully examined a shaft 12 fathoms deep and a level extended west on an east and west lode, 4 ft. wide, and yielding about 3 tons galena (lead ore) to the fathom. With suitable machinery the east and west lode could be made to yield within a short time from 200 to 300 tons per month. I consider this a very valuable portion of your mine, and worthy of every effort to bring it into a good working shape immediately."

In a report dated May 20th, 1878, Capt. CHAMPION states:—"For

the past week I have been engaged in important examinations upon the Virginia Mine with a view of ascertaining definitely what the mine is capable of yielding per month after it is properly opened up. The Virginia Lode is one mile in length, and is a true fissure vein of immense power throughout; the east and west vein on Bald Hill is also a true fissure crossing your estate east and west. This lode is also massive in great force. The monthly output from these two lodes would only be limited by the number of men employed, as we could work at as many points as we chose to select. In my former report I estimated the yield of the Bald Hill lode at from about 300 tons per month, and the Virginia about 400 tons, but my examinations made since convince me that this amount can be very largely increased."

In regard to the Piney Mine Capt. CHAMPION, in a report dated 17th April, 1878, says:—"In conclusion, I have to state that from the strong defined and very favourable indications upon Piney of immense mineral deposits, and from the fact that about five hundred (500) tons of mineral have been raised from various openings, that my opinion is with a small capital this mine could be made to yield sufficient quantities of lead ore to return large and permanent profits to the owners." The Piney estate is covered with a fine growth of timber, and contains a large quantity of building stone, which will be of great service for foundations of buildings and machinery, and for constructing additional furnaces.

PLANT AND BUILDINGS.

The plant and buildings consist of:—

A corrugated iron fire-proof building, 80 ft. by 50 ft., and 30 ft. high, containing a new 50 horse power horizontal engine, hoisting gear for Master shaft, two improved water back Scotch hearths, also new, with room for three more.

A boiler house of corrugated iron attached to the building just mentioned, containing a good boiler, capable of working up to a pressure of 60 lbs. to the square inch.

A reverberatory furnace.

A manager's house, recently erected.

Manager's office, store house, and sleeping rooms for clerks.

A large red brick dwelling house, suitable for accommodation of workmen.

Stables and other buildings.

Dwelling houses and cabins for miners.

A blacksmith's shop, with fittings, tools, &c.

A Blake's boiler pump, mining implements, tools, &c., &c. Large supply of iron piping for compressor and rock drills.

UNDERGROUND DEVELOPMENTS.

The present underground developments of the Virginia Mine consist principally of Master shaft, sunk to a depth of 45 fms.; this shaft is well timbered with oak, and in excellent condition, having been only recently completed, and there is a good footway down to the bottom; it will form the centre of operations for the northern portion of the lode. Air shaft, sunk to a depth of 32 fms. from surface; this is also well timbered and in good repair; a level driven from this shaft to Master shaft for purposes of ventilation. Mineral shaft, sunk to a depth of 15 fms., and other shafts for opening up Bald Hill lode. On the St. Clair Mine two shafts have been sunk and a level run, and on the Piney Mine several small pits or shafts have been sunk on the course of the lode.

LABOUR.

Labour is plentiful, reliable, and cheap, and food of all descriptions cheap and abundant. In consequence of being able to furnish garden grounds to the miners free of cost, and to build dwellings with timber and lumber from the property (which only involves the first cost of construction, the houses remaining as a permanent investment for the company), the company can secure good miners for about 4s. per day.

COST OF PRODUCTION.

The Virginia Mine commands the following important advantages in relation to the cost of production:—

First.—The mineral is free from all foreign substances, and yields 82 per cent. of lead, as per Messrs. Johnson, Matthey, and Co.'s assay. There is no calcining required, and the ore is easily and cheaply dressed.

Second.—Timber is so abundant for all mining and smelting purposes, building and fuel, that its only cost consists in cutting and hauling.

Third.—There is no royalty to pay, which in England often amounts to 1-10th or 1-12th of the produce.

Fourth.—There is no income tax, and the State and county taxes are merely nominal.

These and other important advantages commanded by the company, combined with the present improved methods of mining and the use of compressors and rock drills, will enable the company to produce its lead and market the same in St. Louis at a cost of about £10 per ton of 2240 lbs. The estimates of cost of production have been very carefully prepared by Capt. Champion, and they are confirmed by the experience of other large lead mines in Missouri.

RATE OF PRODUCTION AND PROFIT.

As regards the production of the mines, it is confidently expected that when the proposed developments are thoroughly under way the company will be able to smelt enough ore to produce about 300 tons of pig-lead per month; and from the various reports on the property it is reasonable to presume that in the course of about 18 months enough could be smelted to produce about 600 tons per month. Capt. Champion estimates that the Virginia Mine alone, when fully developed and opened up, will produce as much as 1400 tons of galena per month, yielding 1000 tons of pig-lead, and that the cost of producing and delivering at St. Louis will not exceed £8 per ton of 2000 lbs.

Taking even the present exceptionally low price of lead, and a yield of only 400 tons per month, the mines would pay a profit of £28,800 per annum, or over 30 per cent. on its share capital.

400 tons of pig lead at (say) £16 per ton of 2240 lbs. ... £6400
Cost of producing and delivering same in St. Louis at (say) £10 per ton ... 4000

Monthly profit..... £2400

Or an annual profit of £28,800.

This rate of profit is not an unusual result for lead mines working on a large scale in the State of Missouri, and it is not unreasonable to anticipate that the price of lead will advance, as the present price both in England and St. Louis is very much below the average of the last five years.

MARKETS.

In regard to markets these mines may without exaggeration be said to possess most unexceptional facilities, and such it is believed as are not commanded by any other lead mines in the United States, and probably not exceeded by any others in the world, from the fact that they have not only water communication with St. Louis (which is one of the best lead markets in the United States), but a continuous water-way to England, France, and to the Continent generally; thus affording a ready and cheap access to all the best lead markets of the world. The Meremac River runs through the Virginia and Piney Estates, and empties itself into the Mississippi River 15 miles below St. Louis. From this point the lead can be shipped to New Orleans, and from there direct to England and the Continent, should it ever be to the interest of the company to do so. This, however, is a contingency not likely to arise, and it is merely mentioned to show how many markets the property commands. The cost of transportation from the mines to England would only be about £1 per ton.

The following official statistics, taken from "The Annual Statement of the Trade and Commerce of St. Louis for 1877, page 83, speak for themselves as to the St. Louis market:—

RECEIPTS AND EXPORTS OF LEAD IN PIGS OF 80 LBS. EACH FOR SIXTEEN YEARS.

Years.	Receipts.	Exports.	Years.	Receipts.	Exports.
1862.....	95,800	—	1870.....	237,939	62,674
1863.....	79,823	—	1871.....	229,796	50,660
1864.....	93,035	—	1872.....	285,769	62,862
1865.....	116,636	—	1873.....	356,037	216,040
1866.....	149,584	13,553	1874.....	479,448	218,538
1867.....	144,555	18,674	1875.....	579,202	320,668
1868.....	185,823	40,358	1876.....	665,567	404,300
1869.....	228,303	57,281	1877.....	790,028	473,281

It will be observed that the receipts of pig-lead in St. Louis have increased from 95,800 pigs (3420 tons) in 1862 to 790,028 pigs (28,215 tons) in 1877, the greater part of which was supplied from the lead mines of the Missouri Basin, in which the company's mines are situated; thus showing conclusively the reliability and large and increasing production of the Missouri lead mines. In 1810 the population of the City of St. Louis was only 1400; it is now about 500,000. With its extensive railway system and great river communications its future prospects are unsurpassed by any city in the United States. Missouri may be said to be almost in the very centre of the American Continent. It has a population of nearly 2,000,000, and is an old, rich, and prosperous State. One great advantage in connection with the St. Louis market is that lead is always sold there for cash on delivery.

By the foregoing it will be seen that the Virginia Mines have in St. Louis an exceptionally good market. The United States, which was formerly a large importer of lead from England and Spain, has now practically ceased to import lead, and has become a considerable exporter. The imports of lead into the United States from 1873 to 1878 were as follows:—

1873	Tons 22,114	1876	Tons 4,685
1874	17,674	1877	6,224
1875	7,305	1878	285

The 6224 tons imported in 1877 and the 285 tons in 1878 were re-exported, and in addition 745 tons of United States lead were sent to China and Europe. During 1878 the United States have shipped 5321 tons of lead to China and Japan, and 725 tons to Europe. The Nevada mines can realise a greater profit on their lead by sending it to San Francisco, and shipping it from there to China, than they can by sending it to St. Louis, in consequence of the high charges for carriage by rail from their mines to St. Louis, the distance being about 1700 miles, as against about 700 miles to San Francisco, and they will, therefore, doubtless avail themselves to the fullest extent of the opportunity of supplying the demands of the Oriental market. The argentiferous lead of these mines cannot compete against the Missouri lead for the requirements of the white lead trade. The Virginia lead is perfectly free from antimony, and is fully equal to the best known brands of "Soft" lead of either English or Spanish production.

Mr. SOPWITH, in his report of 27th February, 1879, under the heading "Value of Lead," makes the following statements in regard to the prospects of the American lead market:—

"For many years previous to 1877 the average price of lead in America was from £28 to £30 per ton. An import duty of £9 per ton protects the American lead miner from European competition."

"In America there is a large consumption of lead in the form of white lead for painting houses, many of which are constructed throughout of wood, and of sheet and pipe lead in the formation of new and the extension of existing towns and cities, and the experience of past years warrants us in the opinion that with a price of £20 per ton the American lead supply will not equal the demand; and without going so far as to state that such a price as £28 must return, we are clearly of opinion that the price for the next few years, in a normal condition of trade, will be intermediate between £20 and £28, and under these conditions the Virginia Mine should be worked with large profits."

Under all the favourable conditions above stated, it may be fairly concluded that these mines can always produce lead at a good paying profit.

The agreement for the purchase of the property is dated the 8th day of April, 1879, and is made between the Virginia Lead Mining Company, of Franklin County, Missouri, of the first part; Nathaniel Sands, Francis Albuquerque Sands, and George Hopkins of the second part; the said Nathaniel Sands of the third part; the said Francis Albuquerque Sands of the fourth part; and Alfred Weatherley Marriott, as trustee for the Missouri Lead Mining and Smelting Company (Limited) of the fifth part. The terms of purchase are £20,000 in cash and £45,000 in Ordinary or B shares. Out of the total capital of £90,000 there thus remains £25,000 for additional machinery, working capital, and general expenses; this sum, with the amount already expended on the property, is considered ample to conduct the proposed operations, which are already well advanced.

Copies of the Memorandum and Articles of Association, and of the above-mentioned agreement, may be seen at the offices of the Solicitors to the company, Messrs. Mayhew, Salmon, and Whiting, 30, Great George-street, Westminster, S.W., and copies of the reports on the property may be had on application to the Secretary.

Applications for shares to be made either to the Bankers or the Secretary, on the enclosed form, accompanied by a deposit of £1 per share.—30, Great George-street, Westminster, May, 1879.

FORM OF APPLICATION FOR PREFERENCE or A SHARES.
THE MISSOURI LEAD MINING AND SMELTING
COMPANY (LIMITED).

To the Directors of the Missouri Lead Mining and Smelting Company (Limited).

GENTLEMEN,—Having paid to your account at the Alliance Bank (Limited) the sum of £....., being a deposit of £1 per share upon Preference or A Shares in your Company, I request you will allot me Shares, and I hereby agree to accept the same, or any smaller number that may be allotted to me, and to pay the remaining instalments when due, and I authorise you to place my name upon the register of members in respect of such shares.

Name in full.....

Address.....

Profession or Occupation.....

Date..... Usual Signature.....

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.—No. CXVI.*

BY J. CLARK JEFFERSON, A.R.S.M., W.H. SC.,

Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal.)

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SECTION V.

DAMS IN LEVELS AND SHAFTS.

The method of damming up levels by means of balks placed horizontally is very common in the Liege district. The following account of an imitation of the Liege method executed at the Huelgoat lead mine, Poullemon, in the department Finistère, is usually cited as a good example. The level is slightly enlarged where the dam is to be placed, so as to form projections on the sides at right angles to the general direction of the level, against which the ends of the balks rest. Any crevices or irregularities in the sides which have been dressed are filled with hydraulic mortar. The dressed sides are dried by means of a sponge and unslaked lime, and then covered with thick planks, as well as the roof and the floor. The planks are covered on the side next the rock with linen, smeared over with a composition of linseed oil, litharge, burnt lime, and tow; linen smeared over with the same composition is placed between the balks. The first balk is then laid upon the foot planking, and is of such length that whilst one fits close against the vertical plank on one side a space of about $\frac{1}{2}$ in. is left between the other end and the vertical plank on the opposite side. This space is reserved for wedging. When the second balk has been laid on the first, with the intervention of smeared linen, both balks are held down in position by driving in two or three vertical struts placed on the top of the second balk, and binding tightly against the roof. These two balks are then wedged tight in position, the wedges being inserted at one end only. The first wedges are made of pine wood, 10 millimetres thick at the head and 14 in. broad. These are followed by thinner wedges of oak. In a similar manner the rest of the balks are laid with the insertion of a broad strip of smeared linen in the joints. The ends are wedged in a similar manner, the balks being held down by means of vertical struts. The wedges are driven in from behind the dam. The last balk is cut to suit the space left between the roof, so that when this is placed in position a space of $\frac{1}{2}$ in. is left next the roof for the insertion of wedges. After this all the joints are caulked, covered on the side next the water by strips of linen smeared over with the above composition, the linen being nailed on to the balks. After this any open spaces or crevices are filled up with hydraulic cement, so that the level immediately behind the dam is of the normal dimensions.

In order to strengthen the dam two vertical uprights are placed close against the balks, and at a short distance two strong props are tightly wedged against the roof and floor in front of the uprights. Horizontal struts are inserted between the uprights and the props in line with the horizontal joints between the balks. The props are still further strengthened by inclined struts against the roof and floor.

To allow access to the back part of the dam an opening was left in the centre of the dam, which it was at first intended to close with a wedge shaped stopper, made of three pieces of pine. As this was unsuccessful, a hinged door, 24 in. long by 16 in. high and $\frac{1}{2}$ in. thick, formed of beech, was suspended at the back of the dam. The side of the door next the opening was covered with leather, as was the back of the dam all round the opening. The door was at first closed tight by means of a couple of bolts, which were afterwards removed, when it was found that the water pressure behind the dam was sufficient to keep it closed.

LOCK DAMS.—This description of dam is so called from being in principle an imitation of the lock gates used in canals. Their use was much more usual formerly, and their construction is designed to meet special conditions, which are best illustrated in the case of the Charteuse Colliery, near Liege, which is described by Von Dechen in Karsten's Archives. The Diamond seam at the above colliery dips at from 45° to 50°. The roof and floor are not compact enough, nor firm enough, to support the thrust of the ends of the dam balks. The coal, on the contrary, is well suited to withstand the pressure, but is only 4 ft. thick, and the great width (13 ft.) of the level is such that were the balks laid parallel to the floor of the level in the usual manner they would have to be made of inconvenient dimensions to be strong enough to resist the water pressure represented by a column of water 52 yards high. Instead four single horizontal balks, each 17 in. high, 22 in. broad, and 13 ft. long, the dam is formed of eight balks of the same section, but inclined so that the ends of each meet in the middle of the level projecting about 12 in. backwards towards the side on which the water pressure is exerted. The sides of the coal are dressed at right angles to the general direction of the level, and the first 5 in. of the roof and floor being cracked, and not compact enough, are removed, so that the dimensions of the level are 13 ft. by 4 ft. 10 in. Since the ends of the balks are cut square off, wedge shaped openings are left where they meet at the centre, and also where they abut against the sides of the coal. These are closed with wedges, those abutting against the coal have a layer of moss interposed between them and the sides of the coal. Since these dams have no opening for the access of the workmen only the lower sets of balks can be wedged on the side next the water. The last pair are provided with hand-griffs, to introduce them into position, and to which ropes are attached; these being drawn tight by a windlass closes the upper pair of balks watertight. To prevent any leakage of water between the roof, or floor, and the dam, the floor and roof are covered with long thin planks, wedge shape in section, between which and the roof, or floor, a layer of moss is inserted. Wedges are driven in between the lower set of balks and the planks covering the floor, and also between the upper set of balks and the planks covering the roof.

WEDGE DAMS.—This description of dam appears to have been first employed in Germany, and may be so called either because the dam when completed forms a sort of large wedge which fits in the level, or because the dam is usually built up of wedged shaped pieces. The use of the wedge dams is suited to almost all circumstances, especially where the section of the level is considerable, and the sides, roof, and floor are not sound enough to support a dam placed in it in the ordinary manner—by means of projecting ledges cut in the sides. The resistance which such dams oppose to the pressure is due to the cohesion of the materials of which the dam is formed, and to the reactionary pressure of the sides against which the dam abuts. If we consider any horizontal section of the dam, the pressure of the water against the section may be and is resolved into two forces, which act perpendicularly to the dressed faces of the sides against which the dam abuts. The resistance of the sides may be practically considered as infinite, and consequently the strength of the dam is dependant chiefly on the cohesion among its parts, and its resistance to crushing. The dams may be formed as truncated pyramids, which is the case when the front and back sides of the dam are vertical, and at right angles to the axis of the pyramid. In other cases the front of the dam may be convex, and the back side concave, both with the apex of the pyramid at the centre.

As an example of the first kind may be cited the dams erected in the Spanbruch Colliery, near Aix-la-Chapelle, and described by Von Dechen in Karsten's Archives for Mining, &c. A part of the level is chosen which appears freest from clefths, and the least affected by the weathering action of the air currents, &c. The sides and roof are here dressed over a length of from 3 ft. to 4 ft., so as to form four inclined surfaces, which if produced would form a pyramid with a rectangular base, the apex of which is about 40 ft. in front of the dam. The height of the level is about 6 ft. at the front

end, and 6½ ft. on the water side of the dam. In order to use the wood (oak) to most advantage the wedges of which the dam is formed are cut in various sizes, though the wedges in one row are all of one size, the size of the wedges differing in different rows. The thickness of the wedges varies between 5 in. and 8 in., their length is about 40 in. The sides of the wedges are all planed, and formed so that when laid in position the prolongations of the sides would all meet and coincide at a distance, as above mentioned, of about 40 ft. in front of the dam. The key wedge, and the two adjoining wedges in each row form exceptions to the rest. The key wedges are so formed that the thicker end is then at the front of the dam, the sides of the adjoining wedges in contact with the key wedge being formed to suit. Each row is thus provided with a key wedge, and a row placed at about half the height of the dam consists solely of key wedges, and thus forms the general wedge for the dam in a vertical direction, the single key wedges in the other rows serve to wedge the dam tight laterally. The single key wedges are made so as at first to fit only for about half their length, the key wedges forming the middle row are inserted at first only to about one-third their length. In order to prevent the dam giving way whilst the wedges are being driven tight up, the back (water side) of the dam is covered with about eight planks placed horizontally. Close behind the planks, and holding them in place, are three strong props, 7 in. square, let into the roof and floor. In order to have the sides, roof, and floor watertight the lowest bed of wedges rests on a layer of moss; moss is likewise inserted between the side wedges of each row and the sides of the level, and similarly between the wedges forming the last row and the roof. In addition to this, both sides of the dam are plastered all round where the dam abuts against the sides and roof. On driving up the wedges the dam is tightened, a hole being left in one of the lower rows to allow the water to flow off during the driving up of the wedges. When the wedges have been driven up as tight as possible a strong (9 in. or 8 in.) beam is placed horizontally in front of and close against the centre row of key wedges, to prevent their being forced outwards. The beam is held in position by inclined struts bearing against the sides of the level. After this has been accomplished the exit pipe is closed up, and the water rises up behind the dam. The dam is left thus several days to give the wood an opportunity of swelling as it becomes wet; any crevices through which the water finds its way are wedged and caulked tight.

As an extra precaution a second dam, in all respects like the first, is erected in a few weeks in front of the first, so as to leave a space about 1 ft. wide between the two. This space is filled up with well puddled clay, and since any water which may leak through the first would carry part of the clay in attempting to get through the second dam, the crevices, &c., of this latter are gradually stopped up by being filled with the clay, so that the second dam becomes really tighter than the first.

In the above mine this dam kept back a head of water of 190 ft., each dam requiring about three weeks for its erection.

In the Schafbreiter Revier, near Eisleben, the wedges are inserted in a previously prepared frame. The insertion of these frames presupposes tolerably firm ground, as will be evident from the following description:—The dimensions of the level are enlarged so as to form a vertical projection (i.e., at right angles to the general direction of the level) from 18 in. to 2 ft. wide. A rectangular frame, the timbers of which are about 1 ft. thick by 2 ft. wide, is inserted, and tightly wedged all round and against the vertical projection in a manner analogous to the wedging of wedging cribs in rectangular shafts. The wooden wedges, about 2 ft. in length, are shaped so that a prolongation of their sides would all meet in the centre of the level at a distance of 22 ft. in front of the dam, the inner sides of the frame being likewise formed so that when prolonged they would meet in the same place. A cast-iron pipe about 14 in. in diameter is inserted in the dam to serve as a man-hole, which is closed by a conical stopper inserted from the water side. The dam serves to keep back a head of water of 70 ft., the pressure of which causes a slight forward movement of the wedges, amounting to about 1 in.

GEOLOGICAL SOCIETY OF LONDON.

APRIL 30.—HENRY CLIFTON SORBY, F.R.S. (President), in the chair.

Alfred Stanley Foord, Caroline-street, Eaton-square, was elected a Fellow of the Society. The following communications were read: 1.—“A Contribution to the History of Mineral Veins,” by John Arthur Phillips, F.G.S.

In this paper the author described the phenomena of the deposition of minerals from the water and steam of hot springs, as illustrated in the Californian region, referring especially to a great “sulphur bank” in Lake County, to the steamboat springs in the State of Nevada, and to the great Comstock lode. He noticed the formation of deposits of silica, both amorphous and crystalline, enclosing other minerals, especially cinnabar and gold, and in some cases forming true mineral veins. The crystalline silica formed contains liquid cavities, and exhibits the usual characteristics of ordinary quartz. In the great Comstock Lode, which is worked for gold and silver, the mines have now reached a considerable depth, some as much as 2660 ft. The water in these mines was always at a rather high temperature, but now in the deepest mines it issues at a temperature of 157° Fahr. It is estimated that at least 4,200,000 tons of water are now annually pumped from the workings; and the author discussed the probable source of this heat, which he was inclined to regard as a last trace of volcanic activity.

The President remarked upon the interest of the paper in illustrating the method of formation of mineral veins, and asked what the author's opinion was as to the mode in which cinnabar and gold were brought up.

Mr. BAUMANN said that in the district described by Mr. Phillips these phenomena were to be seen perhaps on the largest scale in the world. He thought that these deposits of sulphides of volatile metals illustrated those in other parts of the world, as at Almaden, in Spain. There the cinnabar occurred in a pit which was almost vertical, and might be described as a siliceous sponge-bed infiltrated with cinnabar. At the Solfatara, Naples, sulphides of arsenic occurred in the same way; and at Mieres, in Leon, arsenic and mercury were extracted from the same deposit. In these deposits also we had gold, probably reduced from a chloride by sulphide of mercury.

Mr. ATTWOOD corroborated the statements of the author from his knowledge of the district. Three years ago the lower workings of the Comstock Lode, some 2300 ft. below the surface, were found to be extremely warm, about 100° Fahr.; and at the same time the surrounding vein-matter contained only about 1 per cent. of sulphides and about 99 per cent. of silica, showing that the decomposition of the sulphides could not affect the greatly increased temperature.

Mr. TENDRON spoke of mines in Brazil where the heat was inconceivable, and said that in those mines the gold was invisible, and enclosed in either magnetic pyrites, ordinary iron-pyrites, or arsenical pyrites, in the last in the greatest quantity, in the first the least; there was also about 20 per cent. of silver.

Prof. JUDD recalled the case of the volcano of Volcano, where there were many small vents depositing sulphide of arsenic, and at night a coloured hydrogen flame could be seen above these vents.

Prof. RAMSAY said he had always held that mineral bodies had been deposited from solutions not sublimations, and enquired if the author thought it likely that in the case of the reefs of Australia, if they were deep beneath the surface and permeated by water, the gold might have been deposited from a state of solution in that water.

Mr. TENDRON said that there was no ore in the joints in the clay-slate strata containing the mine he had described, but only in the fissure or walls of contact.

The Author said he had not attempted to explain the chemical actions which took place. The purpose of the paper was to show that these processes were going on now, and that silica might crystallise slowly after deposition. He thought that a volatile mineral like cinnabar would be carried over by steam at a not very high temperature. He doubted whether silica and gold could be volatilised at such temperatures; in most of these vents water in the form of spray appeared to be present, and gold and quartz were

he thought, brought up in solution by it. The great diffusion of the gold might be explained by it and the pyrites being formed *pari passu*. He had never been in Australia; but in California he had never seen an interstratified gold vein, but they were always true veins; and he did not think that quartz veins once formed became subsequently impregnated with gold. No vein with gold was ever practically of much value unless it had sulphides in it, such as pyrites or galena.

2.—“Vectisaurus valdensis, a New Wealden Dinosaur,” by J. W. Hulke, F.R.S., F.G.S.

3.—“On the Cudgong Diamond Field, New South Wales,” by Norman Taylor, of the late Geological Survey of Victoria: communicated by R. Etheridge, jun., F.G.S.

The author described in detail the various spots at which diamonds have been found in this locality. They occur in river-drift, associated with gold and other gems. The drifts in the district are at least six in number. The oldest is considered by the author to be Upper Miocene or Lower Pliocene; the next Middle Pliocene; others Upper Pliocene, Pleistocene, and Recent. Between the Middle and Upper Pliocene flows of basalt lava took place, which have sealed up much of the older drifts. Diamonds are found in the oldest drift and, probably by derivation from it, in the newer. Gold, metallic iron, wood, tin, brookite (?), iron-sand, quartz, tourmaline, garnet, pleonast zircon, topaz, and sapphire, ruby, and corundum are also found. The author then considers the question of whether the diamonds are derived from some of the igneous or sedimentary formations (from Upper Silurian to Mesozoic) which have contributed to the drift; and concludes, from a variety of reasons, that the diamonds have been formed *in situ* in the older drift.

The President spoke of the interest of the paper, but said he had difficulty in understanding how a diamond could be formed at so low a temperature as in a drift. A friend of his thought that he had obtained artificial diamonds, but in a very different way; and perhaps the matter at present could hardly be regarded as settled.

4.—“On the Occurrence of the Genus *Dithyrocaris* in the Lower Carboniferous or Calcareous Sandstone Series of Scotland; and on that of a second species of *Anthrakopneum* in these Beds,” by R. Etheridge, jun., F.G.S.

The next meeting of the society will be held on May 14, when the following communications will be read:—1. “On the Pre-Cambrian Rocks of Carnarvonshire,” by Prof. T. McK. Hughes, F.G.S.—2. “Notes on the Structure of the Palaeozoic Districts of West Somerset,” by A. Champernowne, F.G.S., and W. A. E. Usher, F.G.S.—3. “The Whin Sill of Teesdale as an Assimilator of the Surrounding Beds,” by C. T. Clough, F.G.S.—4. “On the Augitic Rocks of the Canary Islands,” by Senor Calderon: communicated by the President.

SALT IN THE MANUFACTURE OF FINISHED IRON.

The question of the best method of applying salt in the puddling process has just been discussed by the managers of the mills and forges of South Staffordshire and East Worcestershire at a numerous-attended meeting of their association under the presidency of Mr. Price, manager of the Bettle Lane Ironworks, Stourbridge. Members stated they had thrown dry salt upon the bottom of the puddling furnace before the charge was put in, and upon the iron as it was about coming to the boil; that they had used it as a mixture with manganese, and as a mixture with fire-clay and red-ore. It had also been used in solution with water to saturate the bull-dog in the preparation of the fettling, and its use in solution adopted by Messrs. Nettlefold was also spoken of. The quantity of salt used varied in nearly every case. As much as 4 lbs. of dry salt had been thrown upon lean iron beginning to thicken, and the result was that the iron boiled fluid; when shingled, was hard like steel; when broken as a bar, was highly crystalline; and after being piled, re-heated, and drawn out through the rolls, was very brittle. Thrown upon the furnace-bottom salt benefited the fettling. Used as a “physic” with manganese in iron for sheets it was found of advantage, since the bars were clear, and when rolled out the sheets had a good surface. In getting up lean and soft iron for sheets it was found of especial advantage as a hardener. The mixture was deemed good for steel iron. Mr. Jeremiah Jones, manager of the Terry Hill works, had with advantage used dry salt and manganese, in the proportion of 2 lbs. of the former to 3 ozs. of the latter, in the manufacture of iron for sheets. Salt mixed with fire-clay and red-ore and thrown on the bottom of the furnace had been found by Mr. William Farnworth, manager of Messrs. E. P. and W. Baldwin's works, to harden the sheet-iron, and give the sheets a dry surface.

Mr. Farnworth had also experienced good results from throwing cold water on the iron while it was in the furnace. As to the application of salt and water upon the patented method of Mr. Barnett, Mr. Ellis, manager of the Primrose Hill Ironworks, said that he had tried it under Mr. Barnett's directions: 1 lb. to 1½ lb of salt was dissolved in a quart of water, and more water was afterwards added. This solution was applied to a furnace for a fortnight with the result that it improved the fettling and the bottoms. The patentee's charge was, however, for his method of application too expensive, and it was not continued. Mr. Cresswell, mill and forge manager at the Earl of Dudley's works, had employed the solution on Mr. Barnett's principle for some months. He used about as much salt as had been used at the Primrose Hill Ironworks. It had been employed in a single furnace and in a double gas furnace, and the results were the more satisfactory from the gas furnace. A comparison of the yield of a gas-furnace worked without the solution and of one worked with it showed a larger yield by 1 qr. and a few pounds from the latter. The bulldog was saturated with the brine, about 1 gallon was poured on the double furnace bottom, and when the charge began to thicken about 5 quarts was put in on each side of the double furnace. One furnace had been worked throughout a whole week, and no scrap ball had had to be used. Mr. Cresswell had known one fettling stand nine heats.

After hearing these and other similar experiences the meeting was of opinion that where hard steely iron was required the application of salt in solution was beneficial, but where pliable and ductile iron was needed salt should not be used. The information received was not, however, considered to be complete, and the further discussion of the subject was adjourned till after the annual trip of the association, which will be taken at the close of May, to the Castle Ironworks of Messrs. Nettlefold, in Shropshire, where the patented method is working successfully.

—Wolverhampton Chronicle.

BRAKES.—At the Society of Engineers, on Monday (Mr. R. P. Spice, president, in the chair), a paper was read by Mr. E. D. Barker on Hydraulic Continuous Automatic Brakes. The author, in introducing the subject, pointed out the adaptability of hydraulic power for actuating railway brakes, and the advantages of its application in this respect. He then stated that in the first trains fitted with his hydraulic brakes, practice then only required that the brake should be worked by the guard, and not by the driver, although the latter was undoubtedly the right man to work the brake, and the author subsequently adapted his brake to suit the latter practice. The author then gave a short description of his earlier form of hydraulic brake, and a detailed description, illustrated with diagrams, of its latest development—as an automatic as well as a continuous brake, and which arrangement, he stated, met all the Government requirements. It was also stated that an express train on the Great Eastern Railway, fitted with the latest development, was in successful daily working. Attention was then called to the importance of being able to regulate the hydraulic pressure brought to bear on the brake blocks—brakes not only being required for emergencies, but for the convenience of traffic. Taking into consideration the great desirability of diminishing the discomfort of passengers, the author contended that the more perfectly the power could be regulated the more appropriate brakes became for the numerous and varied requirements of railway working, and that the hydraulic brake fulfilled the required conditions more perfectly than any other. Some popular objections which had been urged against hydraulic brakes were considered, and their fallacy pointed out. The good results these

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. von Gumboldt, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

brakes were capable of giving as a train-stopper were alluded to; and, in conclusion, it was shown that water exercised no prejudicial effect on the materials employed.—At the last monthly meeting the following gentlemen were balloted for and duly elected:—Mr. George Matthew Ward, of Warrington; Mr. Robert Berridge, of Bishopsgate-street; and Mr. Henry Robinson, of Westminster, as members; and Mr. R. Wm. Cooper, of Westminster, as an associate.

AMERICAN LEAD MINES AND BRITISH CAPITAL. MISSOURI LEAD MINING AND SMELTING COMPANY.

It was remarked some twenty years ago in an interesting series of communications to the *Mining Journal* by a far-seeing German with regard to the introduction of continental manufactures into this country that if the cost of manufacture of any given article were necessarily greater in England than on the Continent the only remedy in the hands of the British capitalists was to secure a share of the profits to result from the importation of continental goods by acquiring the proprietorship, or partial proprietorship, of the foreign works wherein they could be manufactured most cheaply. The large importation of Belgian iron, Swedish finished joinery, and the like, coupled with the fact that the only Englishmen who secure a share of the manufacturing profit in these instances are those whose capital is invested in the enterprise, proves the accuracy of the views expressed, and it is even stated that Mr. A. J. Mundella, M.P., the great friend of British workmen, manufactures in Germany a large proportion of the merchandise he sells, and by the vastly augmented profits thus realised is enabled to display far more liberality than his neighbours to those whom he employs in this country. In principle, manufacture abroad and the production of minerals abroad are the same, and with regard to British capitalists carrying on lead mining in America there is the additional advantage of facilities for producing metallic lead cheaply within a short distance of markets in which it can be sold at prices which at the ordinary cost of manufacture would leave enormous profits. It is in consideration of these circumstances that it has been determined to apply British capital for the development of lead mining industry in Missouri, mines having been selected, the special features of which will be noticed presently.

The property about to be acquired by the Missouri Lead Mining and Smelting Company, which has just been formed with a capital of 90,000*l.*, in shares of 10*l.* each, is situated about 5 miles from the town of St. Clair, on the St. Louis and San Francisco Railroad, is about 1000 acres in extent, freehold, of great mineral value, and has a moderate quantity of plant and buildings. The purchase price is 20,000*l.* in cash, and 45,000*l.* in deferred shares; which leaves 25,000*l.* for additional machinery, working capital, and general expenses—an amount which, with what has already been expended on the property, is considered ample to conduct the proposed operations, which are already well advanced. The title being direct from the Government leaves nothing to be desired, and with regard to the character of the ore, three samples taken promiscuously from the mine were found by Messrs. Johnson, Matthey, and Co. to assay 82 per cent. for lead, and the lode from which it is taken has, after careful examination by mining engineers and experts, been pronounced to be a true fissure vertical vein, averaging 3 ft. in width—it is a north and south vein, and has been proved to be continuous for about 1½ mile in length. Mr. Thomas Sopwith, M.E., M.I.C.E., whose name alone is a guarantee for any statement connected with lead mining, has made a careful report upon the Virginia Mine, in which he states that the property is one square mile in area (640 acres), intersected by the River Meremac, a tributary of the Mississippi, which it joins about 15 miles below the city of St. Louis—the principal lead market of the United States—the mines belonging to the Missouri group, which for more than half a century has been the chief source of the American lead supply.

The Virginia Mine appears to have been discovered about 1834, but no regular mining operations were carried on until ten years later, the work done before 1844 being confined to the digging out of the lead by working miners from small lots 4 fms. square rented by them for the purpose. The firm which acquired the lease in 1844 set to work energetically, erected smelting furnaces, winding and pumping engine, and other plant, and seem to have been very successful, raising 400 tons in a year from above the 30 fm. level until 1846, when their business unconnected with mining having become involved, the mine was suspended, and altogether neglected until nearly 30 years after, when the improving prospects of the American lead trade caused attention again to be directed to it vast resources. The fact that no rents, dues, or royalties of any description are payable on the mines or minerals raised is alone of vast importance; whilst with regard to the geological conditions Mr. Sopwith states that the rock in which the Virginia lode occurs belongs to the dolomite, or third magnesian limestone of the American geologists. Red sandstone occurs both over and underlying this limestone, and is known locally as the second sandstone. The ore in the Virginia lode occurs in a matrix of barytes and calc spar, the former being the most abundant. The ore is galena, and is not as a rule intermixed with pyrites or other substances of approximate specific gravity, and it can be dressed to a tenure of 78 per cent. of metallic lead by assay. The ore was found close up to surface in the earlier and shallow workings in considerable quantity. Although blende occurs in large quantities in a neighbouring mine, there is no trace of it in the Virginia, which is a favourable feature, inasmuch as the separation of lead and blende necessarily involves elaborate and consequently expensive processes; blende, moreover, has little or no sale in that part of America. A characteristic feature of the Virginia lode is a thick heavy bed of red ferruginous clay on the back of the vein, this red bed being looked upon by miners as favourable to the occurrence of ore. Mr. Sopwith remarks that the lode is well defined, and carries its course continuously in nearly a straight line over a wide range of country. Its principal constituents are, the red clay previously mentioned, extending to a depth of 50 ft. from surface, below which but few of the prospectors' workings have been carried. At a lower depth it contains, in addition to lead ore, barytes, calcite, and occasional fragments of dolomite. According to present indications and past experience there is every prospect of the lode continuing productive in depth, and turning out large quantities of ore when properly explored and developed. Operations on an important scale have been conducted in various parts of the mine. Several shafts have been sunk to depths varying from 10 to 60 fathoms, in most of which lead ore has been found in remunerative quantities. From a careful examination of these workings, the lode appears strong and productive, offering great promise of the mine becoming, when properly opened out, one of the largest and most productive in Missouri.

Accepting this as satisfactory and conclusive evidence of the value of the mine itself, two still more important questions have to be considered before the British capitalist will be in a position to determine whether the company offers him sufficient inducements to invest money in it: these are—What are the facilities for and the cost of raising the ore, reducing it to metal, and getting it to market? and what kind of market is there when it is reached? Taking these questions separately, and in the order in which they are put, the first considerations will be as to the price of labour and materials, and in both these respects the facts given in Mr. Sopwith's report are highly gratifying. He says that, as compared with American mines generally, labour is cheap in the locality; miners, fairly good men, though not up to the English standard, being obtainable at 5*s.* per day, and as a man and his family can live comfortably on from 3*s.* to 4*s.* per day, food of all descriptions being cheap and abundant, it is not unlikely that many Cornishmen would soon find their way there. Indeed, Mr. Sopwith recommends the engagement of a few competent miners from this country, whose skill and experience would prove of great value in the future development of the mine, and he might have added would be advantageous to the American miners at present in the district. Mining materials generally, he says, cost much about the same as in England, and the conditions of the country in general are favourable to mining operations being conducted with success.

As to transport, a wagon with two horses and driver can be hired

at about 8*s.* a day; horses or mules, the latter being preferable, for haulage, whim-work, &c., can be purchased at from 12*l.* to 20*l.* each. The pig-lead is carried to the St. Clair railroad station, five miles distant, at 5*c.* per pig of 84 lbs., or about 5*s.* 6*d.* per ton English, and the freight from St. Clair to St. Louis is about 12*s.* 6*d.* per ton. House accommodation (wood being the usual building material, and timber abundant) can be cheaply and promptly provided to any desired extent, and as good building stone, timber, and brick-clay are plentiful on the estate, all the requirements of the mine and mine buildings can be readily supplied; whilst as to fuel, it would take many years to exhaust the supply on the estate, but wood, if purchased of the neighbouring farmers, cost but 7*s.* per cord of 128 cubic feet, and coal is delivered on the mine at 24*s.* per ton. Bar and other iron averages 9*l.* 10*s.* per ton, good blasting powder costs 4*d.* per lb., and dynamite 1*s.* 10*d.* per lb. A considerable portion of the existing mining plant will be available for future operations, but for the more speedy prosecution of the mining operations contemplated more engine power will be required; dressing-floors will also have to be erected, but there appears to be every facility for their cheap and speedy erection. The property is at present in charge of a well-known Cornishman—Capt. J. B. Champion—who has resided there for more than 12 months, and his reports upon the property are fully as encouraging as Mr. Sopwith's.

With regard to the smelting of the lead and its sale at St. Louis, nothing seems to be required but ordinary energy and a moderate amount of working capital. There is a reverberatory furnace and some other smelting plant on the property, which plant, however, will have to be re-arranged; but the rapidity with which they manage these things in America having been shown after the fire at the Richmond Company's mines, this is a matter which will give no trouble; and, as the Virginia lead is perfectly free from antimony, and equal to the best known brands of "soft" lead produced in England and Spain, there will be no difficulty in obtaining the best prices for every pig sent to market. It may be interesting to state that the greater part of the lead sold in the St. Louis market is produced in the Missouri basin, wherein the Missouri Lead Mining and Smelting Company's mines are situated, and that for some years past the production has been gradually increasing. The pigs are made of nearly uniform weight, and the St. Louis official statistics are given in number of pigs, but the extent of the increase, which has been constant since 1871, will be readily appreciated when it is stated that the production in 1871 was about 8900 tons, which increased to 19,200 tons in 1874, and to 28,200 tons in 1877; the figures for 1878 are not yet to hand. That the Americans are quite willing to purchase the Missouri lead is evident from the fact that during the last seven years the United States has changed from a lead-importing to a lead-exporting nation. In 1873 the imports were 22,114 tons, since which time the country has been becoming more and more independent of outside supplies, the imports from all countries into the United States having fallen to 17,674 tons in 1874, to 7305 tons in 1875, to 4635 tons in 1876, to 6221 tons in 1877, and to the insignificant quantity of 285 tons last year. The importations of both 1877 and 1878 were re-exported, and during the latter year the United States also shipped 5321 tons of lead to China and Japan, and 725 tons to Europe.

With such figures as these before them, British capitalists will have no difficulty in judging of the vast field before them for lead mining enterprise in Missouri, more especially as the protective duty of 9*l.* per ton upon lead levied upon all importations of that metal is regarded as a surplus profit of that amount in comparing American with European production, whilst with regard to the Missouri Lead Mining and Smelting Company in particular, it will be seen from the prospectus which appears in another column of today's *Journal*, that upon the production of only 400 tons of lead per month an annual profit of 28,800*l.*, or exactly 32 per cent. per annum upon the entire nominal capital of the company, will be realised, the necessary guarantee that the concern will be carried on with energy, economy, and success being afforded by the constitution of the board, which includes the chairman and a director of the prosperous Richmond Company, a director of the celebrated Great Laxey Mine, and two other gentlemen of sound commercial experience, one of them being a director of the local company, which is the actual vendor, and thus capable of giving an amount of valuable information which will be of great advantage to the shareholders. The company is brought forward under very favourable auspices, and is certainly entitled to be well received by investors.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, May 1: Produce ten days, second division of April, 11,500 o*z.*s.=448*l.*; yield, 6*s.* 3*d.* per ton.

DON PEDRO.—Mining captain's letter, dated March 31: General Remarks: The gold has been derived exclusively from the south side openings, and ruled of an exceptionally low class. No alteration to note has taken place in the aspects of the lode or its quality since our last, and the explorations, although some moderate samples have been taken from different points, yet nothing worthy of commenting on has been met with.—Prospective and Running Work: No. 1 Incline Shaft: Several repairs made, and four new iron rolls lately received from England put in to carry the rope. No. 1 side level is re-opened throughout and lathed, and last standing set put in, but still requiring intermediate sets and props. In No. 2 side level a few repairs have been made. In new level several sets renewed and lathed. In the adit level six sets renewed and five legs changed. In the stope a pillar built and props put in. In the 60-ft. wheel 64 holes in the centre-plates (the middle plate which carries the whims) enlarged from ¾ in. and 1 in. to 2¼ in. diameter; 64 holes of inside and outside plates enlarged from ¾ in. to 2 in. diameter. Hollow shafts bored and enlarged to fit centre plates and receive the 2 in. bolts, and settings out to receive the head of bolts. The bottom pieces of middle plate, north side, taken, half moon made and put around joints, and bolts for same completed; 60 bolts, 1½ in. made and screwed, and nuts completed, and 79 tops for 1½ in. staples, and other ironwork advancing fairly. Five distant pieces made and punched to take up the wheel, &c.

Mining captain's letter, dated April 10: General Remarks: The ore has been derived from the south side openings, and continues to rule of very low quality. Nothing new has transpired in the characteristics of the lode in this section since our last.—Explorations: In the explorations carried on in the vicinity of the south side openings nothing worthy of note has been met with. The explorations carried on at Bryant's have come in contact with a pillar. The lode in the same is presenting indications of being of moderate quality, and somewhat extensive. Bryant's level and cross cut have been cleared and prepared in places for over 400 ft. in length to reach this pillar. A tramway is now being laid to facilitate the removal of ore. Samples taken from the lode are of moderate quality.—Prospective and Running Work: No. 1 Incline shaft is still undergoing repairs. No. 1 side level is still in hand. Part of the force has been removed to Bryant's to lay tramway. In No. 2 side level a few repairs have been made, three legs changed, and laths. The new level is undergoing repairs at intervals. Several sets have been renewed in the adit level. A pillar has been built and props put in the stope. The requisite repairs of the 60-ft. wheel are advancing fairly. The hollow shaft for the axle has been put on, and fitted beautifully, and screwed tight; 24 bolts were made and put in, and screwed tight, key-ways on flange joints cut, and keys put in ready for driving with ram, &c. All the distant pieces are put in to take up the wheel on centre plates. The timberwork is fixed for lifting the wheel to change brasses. The brasses are moulded, and all other work in connection with the same is advancing fairly. The hollow shaft is a beautiful fit, and hugs the axle remarkably tight, and will, in our opinion, prove a permanent one, but it will take time to secure everything above the hollow shaft. A great number of visitors who have seen the wheel express great faith in the hollow shaft and admiration at the adjustment of its bearings, as not a hair can by any means be put in between the shaft and flange joints.

ALMADA AND TIRITO CONSOLIDATED.—Telegram from Mr. Cleme, April 14: Profit for February and March, \$9000. I have remitted you ores and bullion, \$7400.

PLACERVILLE.—Telegram from T. Price (received May 7): Have crushed another 128 tons of quartz, yielding \$14 per ton. Cannot crush more until mill has new foundation.

RICHMONT CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$53,000, from 808 tons of ore. Dore bars from refinery, \$38,000. No. 1 furnace disordered.

R. Rickard, April 17: Since my last operations both in the mine and smelting works have been carried on with the usual regularity. The 200 cross-cut has been extended 21 ft. in limestone. The 400 quartzite drift has been extended 28 ft.; the quartzite at this point is widening; at present all the drift is in quartzite. The rise in back of the 400 is up 54 ft., and a drift from the top of the same in an easterly direction 12 ft.—all the distance in ore. The 600 north fissure drift has been extended 24 ft. without any change to notice; work in this drift will be suspended for the time being, and the men put to rise on some very favourable indications for ore. The 600 south, on the fissure, has been extended 26 ft. without any material change in the ground. The 600 south, from shoot, has been extended 22 ft.; the ground is very hard. The 900 north cross-cut has been drifted 9 feet without any change. The ore chambers are without any material change, still turning out the usual quota of ore. The furnaces are still doing good work. The No. 4 (hydrocycle) has been put to smelt the by-products from the refinery; there was a large accumulation, which will take about a month to smelt.

Mr. Probert, April 18: I had hoped to be able to tell you that we had cut the ore in the 5th level cross cut, but it has not been reached yet. *Per contra*, we have proved the connection of the 7th chamber with the main body lying between the 4th and 5th levels, and forming the 11th and 12th chambers. The ore had pinched to a very thin streak of ferruginous matter in the bottom of the 8th chamber, but on following it down it opened out again into a fine body of carbonates, which seems to run flat, forming a floor midway between the 4th and 5th

levels, and immediately beneath a large natural cavern which has been discovered in stopping the upper portion of the 11th chamber. The main ore body is still making up above the 4th, and looking well for continuing; but whether towards the 7th or the Old Richmond seems doubtful.

BLUE TENT.—D. T. Hughes, April 12: The time in this week at South Yuba claim not used in running water was utilised in cleaning up and removing monitors, together with a long string of pipes to a better position, in order to wash off the gravel broken by the blast on the 8th inst. The said blast was a great success; the straight drift was 70 ft., the T 74 ft. and 76 ft. respectively in length, and the powder chambers in proportion, shaped as our best judgment guided us to overcome the resistance, and charged with 750 kegs of powder; it broke the ground well back, and far beyond the ends of the T; this gives us enough gravel to wash for some time to come, but is rather slow at the commencement on account of a stratum of pipe clay which overropeed a portion of the bank broken by the explosion, and a large quantity of it rolled down in front. The Gopher bank is quite hard to pipe in places, and we have now a blast in course of construction, which will be set off in a few days. Everything is working smoothly all round.

May 6: The directors have this day received the following telegram from their manager, Prof. T. Price: "Partial clean-up, \$10,000."

COLORADO UNITED.—The accounts for March are received—they show a net profit for that month of \$1373-80. The total receipts amounted to \$11,686-08. Expenses incurred in working the mine, \$7,271-49. Merchants' bill and other costs, 5,020-79.

Total expenditure, including \$434-92 spent in permanent improvement, \$10,292-08. Between Dec. 31, 1878, to March 31, 1879, the liabilities have been reduced by \$15,940-84*c.*

EBERHARDT AND AURORE.—Capt. Drake, April 16: Tailings: I alluded to this subject in my No. 360 of Feb. 28. Since that time Mr. O. Drake has gone into the undertaking, and made some small changes in the mill, such as timbering under the pan floor and new planing the same to make it suitable for delivering the tailings in front of the pans with teams, and he has made all other repairs to the mill needed for its proper running. He commenced operations on the tailings on the 31st ult., running the full 16 pans, but on the fourth day of his running he was compelled to shut down from the inability of the teams to keep the pans supplied, and he was obliged to extend his arrangements so as to have the tailings delivered at the pans as needed. On the 10th inst. he resumed work, but as there is no room for him to have more than a day's run hauling ahead at a time he was again compelled to stop the mill on the 14th inst. from the same cause as above-named. Perhaps it might have been possible for the teams to keep the pans supplied were the road less soft and a better grade had. But the raising of the tailings from the bed to the mill continues to be a difficulty to overcome without a too great expense in hauling to leave any margin.

PESTARENA UNITED (Gold).—May 2: The following are the returns of gold for the past month:—From Val Toppa District, 219 o*z.*s. 16 dwts. 16 grs., from 516½ tons; yield per ton, 8 dwts. 12½ grs. From Pestarena District, 231 o*z.*s. 17 dwts. 4 grs., from 311½ tons; yield per ton, 14 dwts. 21 grs. Total from the two districts, 451 o*z.*s. 13 dwts. 20 grs., from 828 tons of ore amalgamated; average yield per ton, 10 dwts. 21½ grs.

FORTUNA.—April 30: Canada Inco's: In the 130, west of O'Shea's, good ore ground has been opened out in the past few days, when fell off in value; now the mine is valued at ½ ton per fathom. In the 150, east of Taylor's, the lode is small, but the ore is good. In the 60, west of Abercrombie's, there are very good stones of ore in the upper part of the level, but the lower part is poor; valued at ¼ ton per fathom. The lode in the 50, east of Abercrombie's, is small, and contains spots of lead ore only. The 70, west of San Pedro, is laying open a good length of productive ground, and yielding 1½ ton per fathom. In the 80, west of San Pedro, the lode is regular, and yields good stones of ore; valued at ¼ ton per fathom. The 80, east of San Pedro, is passing through a hard bar of sterile ground. We expect the 70, east of San Pedro, will shortly improve, as there is good ore ground slightly in advance in the level above. The 140, east of O'Shea's, has declined in value in the past few days. The lode in the 100, west of Lowndes', is intermixed with granite, quartz, and spots of lead ore. In the 100, east of Lowndes', no lode has yet been met with on the east side of the cross-course. The ground in the 90, east of Caro's, has become contorted, and consequently the lode is disarranged and poor. Lorne's winze below the 80 being directly over the last-named end it is precisely similar in character, &c. In Caunto's winze below the 70 the lode is large and strong, and composed of quartz, carbonate of lime, and lead ore; worth ¾ ton per fathom.

Los Salidos: The lode in the 80, west of Taylor's, though small, yields good stones of ore, valued at ½ ton per fathom. In the 150, east of Taylor's, the lode is compact and regular, and composed of carbonate of lime and lead ore, yielding 1 ton per fathom. The lode in the 145, east of Taylor's, is strong and large, and is opening productive ground, worth 1 ton per fathom. In the 130, east of Taylor's, the men are opening the north side of the level to see if any more lode is standing in that direction. In the 12½, east of San Pablo, splendid ore ground is being laid open in this level, yielding 3 tons per fathom. The 110, east of San Miguel, has improved, and is also laying open very good stopping ground, producing 1½ ton per fathom. In the 80, west of Fairgrave's, the lode is very irregular, and is at present poor. The 80, east of Fairgrave's, is being driven through a hard bar of ground; it will, doubtless, shortly improve. In Linares winze below the 130, the lode is small and poor, and the ground hard.

LINARES.—April 30: The lode in the 115, east of Warner's, is large, with good stones of ore; worth ¾ ton per fathom. In the 135, south of Pell's, the men are getting on well with this cross-cut. The lode in the 120, west of Pell's, is less productive than it has been for some time past, and now yielding 1 ton per fathom. The lode in the 90, west of Pell's, has fallen off a little in the past fortnight, and now valued at ¼ ton per fathom. In the 120, east of Pell's, a good length of paying lode has been driven through, and producing 1 ton per fathom. In the 140, east of San Francisco, a valuable lode is being exposed, worth 2 tons per fathom. Pell's engine-shaft below the 120, is completed to the required depth for clister and tip-plates. In the No. 229 winze below the 100, the lode has somewhat improved, and yielding 1 ton per fathom. The lode in the No. 230 winze below the 100, although not so rich as it was, is still a productive and promising lode, and valued at 2 tons per fathom. In the No. 231 winze below the 90, the lode is regular and well defined. The usual rate of weekly returns of ore was kept up very steadily throughout the past month, and there has been no change in the average production of the stopes in that time. The ordinary surface work is going on very regularly, and the machinery in good condition. We estimate the raisings for May at 200 tons. Quilentes Mine: The lode in the 100, east of Taylor's, is regular, and contains good lumps of ore. The 90, east of Taylor's, is quite unproductive at present. In the 80, east of San Carlos, the lode has further improved, and is of a very promising appearance, and worth 1½ ton per fathom. The lode in Buzza's winze, below the 80, is getting smaller than it was, and now valued at 1 ton per fathom. The lode in boundary winze below the 50, is divided into branches, and yielding 1 ton per fathom. We have estimated the raisings for May at 75 tons.

ALAMILLLOS.—April 30: In the 20, west of San Felipe, the lode has further improved, yielding 2 tons per fathom. In the 115, south of Taylor's, the men are getting on well with this cross-cut, and will reach the lode in the coming month. The lode in the 100, east of Taylor's, is large and strong, and yields good stones of ore, worth 1 ton per fathom. In the 100, west of Taylor's, there is no improvement. The lode in the 85, west of San Adriano, is large, and contains stones of ore. The 60, east of San Victor, is again improving slightly, yielding ¼ ton per fathom. In the 70, east of San Victor, the lode is unproductive, and rather expensive. In the 70, west of San Victor, there are large and good stones of ore in the upper part of the end. The 30, east of air shaft, is being driven south on a strong cross-course to communicate to a parallel lode. In the 30, west of air shaft, the lode is very cheap for opening, yielding ½ ton per fathom. The 40, south of San Carlos, has intersected several small branches. In the 50, east of Judd's, the lode is compact and regular, and further improved, worth 1 ton per fathom. The lode in the 70, west of Judd's, is at present very small, and not carrying lead enough to value. Fernandez' winze, below the 85, has become unproductive. The lode in Prim's winze, below the 40, is very much reduced in value, but still worth 1 ton per fathom. The usual weekly rate of weighings of ore were kept up regularly during the past month, and the stopes have in that time yielded fairly well. The machinery throughout the mine is in good condition. We estimate the raisings for May at 175 tons.

SEBASTIAN.—The managers report (May 3) that we are sorry again to have to report a continuation of very bad weather—snow and rain nearly every day—which in a great measure prevents us completing the work connected with our No. 2 dressing-floors—masonry, &c., in connection therewith. At No. 1 dressing-floors we have made good progress during the week, and here we are nearly ready to commence dressing. The main iron launder, which is 54 ft. long, is now being put into position to take the water to work the crusher and all the machinery. The tramway to take the ore from the higher to the lower dressing floors is in a forward state, and the bridge across the river to carry the rails will be finished in a few days, weather permitting. The cartwrights have finished twenty-five ore wagons, the twenty-sixth being in hand. From enquiries made we feel sure we shall have no great difficulty in finding horses enough to bring down any reasonable quantity of ore; we are now in negotiation with a contractor to bring down all we can raise. At the mine we have been able to keep going about 25 miners, though we have had great difficulty in keeping them supplied with provisions, fuel, &c. These men have done good duty, and have raised about 70 tons of good silver-lead ore. We should have had a much larger quantity broken but that several of the men have been employed in taking out the water from a winze partly sunk by the former proprietor to effect a communication between No. 3 and No. 4 levels. St. Eugene, which is very much required for ventilation and economical working of this part of the mine. In this winze as far as seen (about 8 metres deep) the lode is rich in silver-lead ore, and we have no doubt this course of ore will continue to No. 4 level, below where we have still the same fine lode, and in which no change has taken place during the past week. The stopes are looking as usual—no material change. The total quantity of ore raised is 2305 tons.

DRAKEWALLS.—At the meeting of shareholders held at Glasgow on April 30 (Mr. John Bell in the chair) the accounts from June 1 to Feb. 20 showed a debit balance of 2475*l.* 18*s.* 10*d.* An additional 3*l.* 3*s.* per month was voted to Mr. Moses Bowden, the manager and purser, who was authorised to open a banking account with Messrs. Bain, Field, and Hitchens, of the Redruth and District Bank, overdraft not at any one time to exceed 2000*l.* Messrs. Bell, Mathews, Pattison, Trotter, and Collins were appointed committee of management. The committee, at the suggestion of the manager, took over the plant of Messrs. Old and Stephens, the contractors for dressing the halcons, at a valuation, the amount agreed on being 130*l.* This was rendered necessary owing to complaints being made as to land damage caused by the sand overflowing the leats. Since the company have taken over the plant there have been no further complaints of land damage. They have also agreed to purchase the house (at present occupied by Captain Dunstan, the resident agent) and a cottage with ground attached, situate on the mine, for 643*l.*, being the amount of the valuation as per valuator's report. The purchase price to be paid in two years. The committee consider the purchase is very desirable, in order to provide a house on the mine for the resident agent. The committee are pleased to state that at the present low prices the tin sold is being returned at a profit. The dividend on the share of tin sold is now 1*s.* 6*d.* in *l.*, giving 6*s.* 8*d.* in *l.* to the company clear of all expenses. This goes far to reduce the cost of driving the deep adit. The committee expect that by driving the deep adit another 65 to 70 fathoms the mine will be unwetted to the depth of the said adit, and this, according to the progress already made, will be accomplished in about six or seven months.



PARIS EXHIBITION, 1878.

GOLD AND SILVER MEDALS AWARDED for
Steam-Engines & Boilers, also the Special Steam Pump,
with Holman's Condenser & Compound Pumping Engine.



TANGYE BROTHERS AND HOLMAN,

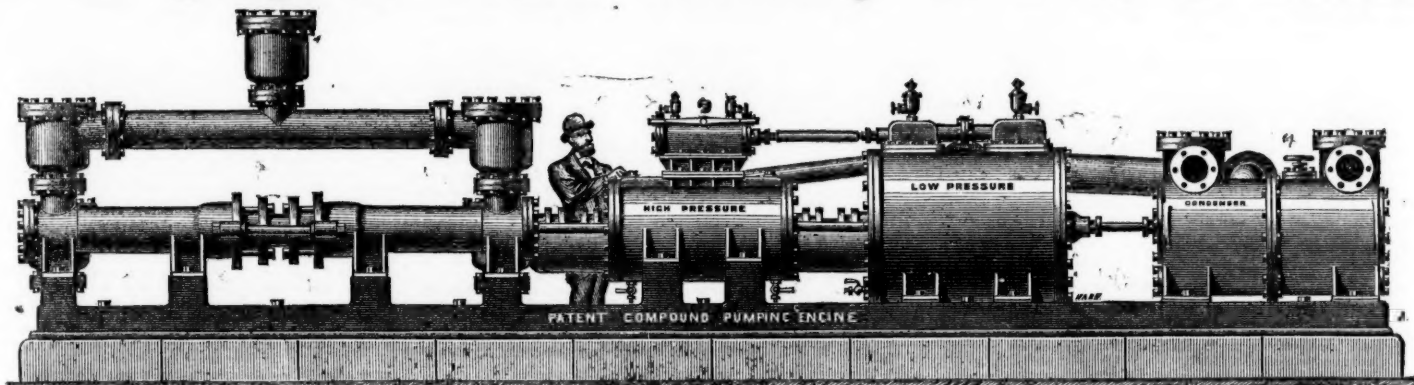
HYDRAULIC AND GENERAL ENGINEERS

CORNWALL HOUSE, 35, QUEEN VICTORIA STREET, LONDON, E.C.,

AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS SOHO.

THE "SPECIAL"
DIRECT-ACTING
COMPOUND PUMPING ENGINE,

For use in Mines, Water Works, Sewage Works,
And all purposes where Economy of Fuel is essential.



THE "SPECIAL" DIRECT-ACTING COMPOUND PUMPING ENGINE, WITH AIR-PUMP CONDENSER.

After several years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once

THE SIMPLEST AND MOST CERTAIN IN ACTION.

The illustration shows an extension of the principle of this Pump to a Compound Steam Pumping Engine, by which the economical advantages resulting from the expansion and condensation of steam are very simply and effectively obtained. The steam after leaving the high-pressure cylinder is received into and expanded in the low-pressure cylinder, and is thus used twice over before being exhausted into the condenser or atmosphere. The Engine combines simplicity, certainty of action, great compactness, fewness of parts, and consequent reduction in wear and tear.

Several thousands of the "Special" Steam Pumping Engines, with high-pressure cylinders only, are in use in British and Foreign Mines, Water Works, &c.,—and for confined situations, or where Engines of a comparatively small size only are necessary, they will still meet all requirements—but their application will be very largely increased, since it has been found practicable to embrace the important features of expanding and condensing the steam, so that increased power may be obtained, and the consumption of fuel greatly economised.

THE "SPECIAL" DIRECT-ACTING COMPOUND STEAM PUMPING ENGINE is the most simple appliance for deep mine draining and general purposes of pumping ever practically developed, and the first cost is very moderate compared with the method of raising water from great depths by a series of 40 to 50 fathom lifts. No costly engine-houses or massive foundations, no repetition of plunger lifts, ponderous connecting rods, or complication of pit-work are required, while they allow a clear shaft for hauling purposes.

SIZES AND PARTICULARS.

Diameter of High-pressure Cylinder.....In.	8	8	8	10	10	10	10	12	12	12	12	14	14	14	14
Ditto of Low-pressure Cylinder.....In.	14	14	14	18	18	18	18	21	21	21	21	24	24	24	24
Ditto of Water Cylinder.....In.	4	5	6	5	6	7	8	6	7	8	10	7	8	10	12
Length of stroke.....In.	24	24	24	24	24	24	24	24	24	24	24	36	36	36	36
Gallons per hour approximate.....In.	3900	6100	8800	6100	8800	12,000	15,650	8,800	12,000	15,650	24,450	12,000	15,650	24,450	35,225
Diameter Suction and Delivery.....In.	3	3½	4	3½	4	5	6	4	5	6	8	5	6	8	9
Diameter High-pressure Steam Inlet.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Diameter Low-pressure Steam Exhaust.....In.	1½	1½	1½	1½	1½	1½	1½	2½	2½	2½	2½	2½	2½	2½	2½
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder.....Non-condensing...	360	330	160	360	250	184	140	360	264	202	130	360	275	175	122
Ditto ditto ditto—with Holman's Condenser...	480	307	213	480	333	245	187	480	352	269	173	480	367	234	162
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	600	417	306	335	600	440	337	216	600	459	203	203

CONTINUED.

Diameter of High-pressure Cylinder.....In.	16	16	16	16	18	18	18	18	21	21	21	24	24	24	30	30
Ditto of Low-pressure Cylinder.....In.	28	28	28	28	32	32	32	32	36	36	36	42	42	42	52	52
Ditto of Water Cylinder.....In.	8	10	12	14	8	10	12	14	10	12	14	10	12	14	12	14
Length of stroke.....In.	36	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate.....In.	15,650	24,450	35,225	47,950	13,650	24,450	35,225	47,950	24,450	35,225	47,950	24,450	35,225	47,050	35,225	47,950
Diameter Suction and Delivery.....In.	6	8	9	10	6	8	9	10	8	9	10	8	9	10	9	10
Diameter High-pressure Steam Inlet.....In.	2½	2½	2½	2½	3	3	3	3	3½	3½	3½	4	4	4	5½	5½
Diameter Low-pressure Steam Exhaust.....In.	3	2	3	3	3½	3½	3½	3½	4	4	4	5	5	5	6½	6½
Height in feet water can be raised with 40 lbs. pressure per square inch in cylinder.....Non-condensing...	360	230	160	118	456	292	202	149	397	276	202	518	360	264	562	
Ditto ditto ditto—with Holman's Condenser...	480	307	213	154	603	389	269	198	528	363	269	691	480	352	750	
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	191	750	486	337	248	680	450	337	864	600	440	937	

PRICES GIVEN ON RECEIPT OF REQUIREMENTS.

Any number of these Engines can be placed side by side, to work in conjunction or separately as desired, thereby multiplying the work of one Pump to any extent.

NORTH OF ENGLAND HOUSE ... TANGYE BROTHERS, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... TANGYE BROTHERS AND STEEL, Tredgar Place, NEWPORT, Mon.; and Exchange Buildings, SWANSEA

FORTY-SIXTH ANNUAL REPORT OF THE NATIONAL PROVINCIAL BANK OF ENGLAND.

MAY 8TH, 1879.
Subscribed Capital, £5,112,500.
On £20,000 Shares of £20 each, £21 paid £ 420,000
100,000 ditto £20 each, £12 paid 1,267,500
Paid-up capital £1,687,500
Total £1,687,500
Reserve fund, £930,000.
Number of Shareholders, 4960.

DIRECTORS.
The Most Honourable the MARQUESS OF AILSBURY.
GEORGE HANBURY FIELD, Esq.
JOHN OLIVER HANSON, Esq.
JOHN KINGSTON, Esq.
DUNCAN MACDONALD, Esq.
HENRY PAULL, Esq.
EDWARD ATKINSON, Esq., Honorary Director.
WILLIAM HOLT, Esq.
ROBERT FERGUSON, Esq.
THOMAS GEORGE ROBINSON, Esq.
BISHOPSGATE STREET, corner of Threadneedle-street, LONDON.
SOLICITOR.
CHARLES NORRIS WILDE, Esq.
RICHARD BLANEY WADE, Esq., in the chair.

REPORT.
The directors congratulate themselves that the time has arrived for meeting the shareholders, and placing before them the annual statement of the bank's affairs. The published rate of the Bank of England has varied eleven times during the year, making an average of £3 15s. 7d., as against £2 18s. for the year 1877. Although the rate of interest ruled high for several months it was not wholly to the advantage of the bank, inasmuch as a large amount of cash from prudential reasons was allowed to lie unproductive during the autumn, to meet any contingencies which might arise from the effect of the failure of the City of Glasgow Bank—still the directors believe that the statement of accounts herein given will prove highly satisfactory to the shareholders. The result enables the directors to recommend—

That the dividend and bonus now to be declared be 11 per cent. for the half-year, being the usual 4 per cent. dividend, with a bonus of 7 per cent., making, with the distribution in January last, 21 per cent. for the year, leaving, after adding £30,000 to reserve, a balance of £30,791 7s. 2d. of undivided profits to be carried forward to the account of the current year.

The following is the summary of the operations for the year, submitted in the form hitherto in use:—

Rest or undivided profits at 31st December, 1877, as exhibited at annual meeting in May, 1878, viz:—

Less bonus declared and paid in cash in July, 1878..... £1,018,125 0 0
118,125 0 0

Leaving £ 900,000 0 0

Net profits of 1878, after making allowance for bad and doubtful debts and bonus to officers £81,260 14 9

Making £1,281,260 14 9

Add undivided profits from 1877 38,905 12 5

Total £1,315,166 7 2

Deduct—

Dividend on company's stock, paid July, 1878, £ 67,500 0 0

Ditto do ditto Jan., 1879, 67,500 0 0

Bonus of 6 per cent., paid Jan., 1879, 101,260 0 0

Undivided profits to next year 30,791 7 2—£ 267,041 7 2

Leaving £1,048,125 0 0

O it of these profits the directors propose to declare, in addition to the foregoing dividends and bonus paid to proprietors as above stated, a further bonus of 7 per cent., payable in July next, making the division of profits for 1878 in all 21 per cent. upon the paid-up capital, free of income tax, amounting to ... 118,125 0 0

Leaving reserve invested in Government securities £ 930,000 0 0

During the year the number of current accounts has been increased by 5227, comprising many of a very valuable character.

On the failure of the West of England and South Wales District Bank the directors received very earnest solicitations from several of its constituents to open branches, under the promise of full support. It was, however, not deemed advisable to meet all these invitations, the directors being anxious to avail themselves of the new business which naturally flowed to the bank in those places where it had branches, and also to consolidate as much as possible the general business of the establishment; they, consequently, declined to open new branches, excepting at—

PLYMOUTH AND CREDITON;

at the former place under the management of Mr. Henry Cross, for many years the respected representative of the West of England Bank there; the latter under the management of Mr. J. Templeton, who was also in the service of the same bank. Both of these branches give promise of satisfactory results, while they tend to complete the chain of the Devonshire branches.

Since the last annual report the directors have incorporated the business of Sandwich with that of the Deal branch, and the arrangement has worked satisfactorily.

In consequence of the increasing connections of the bank at its various branches, together with the addition of the Bank of Leeds (Limited), to which reference was made in the last report, and the acquirement of new and valuable accounts in the West of England and South Wales districts, the directors feel that the capital of the bank should be enlarged so as to meet the requirements of the business, and at the same time increase the security of the depositors.

The directors, therefore, propose to issue 25,125 shares of £20 each, to be offered at £10 premium, payable in five equal instalments, as below, to the proprietors whose names stand upon the register on the 21st May instant, in the following proportions, viz:—

Each £20 Share to be entitled to 7-20ths of a New Share.

Each £20 ditto ditto 4-20ths ditto.

Upon the New Issue it is intended that £12 per share shall be called up, and paid with the premium in the following manner:—

1st Instalment, £2, Part Premium, £2, 15th July next.

2nd ditto 2, ditto 2, 15th Jan., 1880.

3rd ditto 2, ditto 2, 15th July, 1880.

4th ditto 2, ditto 2, 15th Jan., 1881.

5th ditto 2, ditto 2, 15th July, 1881.

6th ditto 2, ditto 2, 15th Jan., 1882.

The directors propose to add the whole of the premium which will be received on these shares to the reserve fund, and to invest it as heretofore in Government securities. In July, 1881, therefore, the reserve fund will amount to £1,211,250; and in 1882 the paid-up capital of the bank will be £2,025,000.

Letters of allotment will be issued as soon as possible after the 21st instant, with a memorandum for the fractional shares. The proprietors must either sell the fractional shares or allot to them, or purchase such other fractional share or shares as will make one whole share, the memorandum for which must be lodged on or before the 1st of August next, when scrip will be issued for the whole number of new shares allotted to each proprietor, and the operation be thus completed. The first instalment will be entitled only to the dividend payable in January next, after which date, however, it will carry both dividend and bonus. The other instalments will be dealt with in a similar manner to the first.

The bank failures herein referred to very naturally caused anxiety to shareholders in unlimited banks, and the matter has engaged the serious attention of the directors as well as the representatives of other banking institutions. Various interviews have been held with the Chancellor of the Exchequer, who has introduced a Bill on the subject, and should the Bill become law steps will be taken to bring before the shareholders the question of limited liability on such a basis as will be satisfactory to them, and at the same time secure a continuance of that public confidence which the bank has so long enjoyed.

It is due to the shareholders that they be informed that when the City of Glasgow Bank suspended only £13,000 of its acceptances were held by this bank, which were at once withdrawn by the parties from whom they had been received, while a balance of £635 ss. 10d. was due on the ordinary account, on which a first dividend has been received.

It is with sincere regret the directors have to inform the proprietors of the death of Alexander Robertson, Esq., who became a member of the board in 1868 on his retirement from the office of joint general manager. Mr. Robertson rendered valuable services to the bank during a period of 43 years, and was held in great esteem by every member of the board.

The following directors go out of office by rotation, but, being eligible for re-election, offer themselves accordingly, viz:—John Kingston, Esq., Sir James Sibbald David Scott, Bart., and Duncan Macdonald, Esq.

A vacancy has occurred in the direction by the death of Alexander Robertson, Esq., to supply which the following qualified proprietor has offered himself as a candidate, viz:—Charles Barclay, Esq., 12, Great Winchester-street, E.C.

NATIONAL PROVINCIAL BANK OF ENGLAND.

LIABILITIES—31ST DECEMBER, 1878.

Dr.—To paid up capital £ 1,687,500 0 0

Amount due by the bank on deposits £25,930,793 7 8

Cash against Consols as per contra 673,000 0 0= 26,603,793 7 8

Acceptances 840,283 9 11

Reserve fund, 1st January, 1878, £ 900,000 0 0

Now added 30,000 0 0= 930,000 0 0

Profit and loss balances 148,916 17 2

Total £30,110,498 4 9

ASSETS.

Cr.—By cash in hand at Bank of England and branches, £ 5,521,098 17 2

at call and short notice 3,798,821 12 4

Government securities 2,343,500 7 10

Indian Government and other securities, debentures, &c. 17,063,908 7 3

Bills discounted, loans, &c. 840,283 9 11

Cover for acceptances, as per contra £700,710 9 4

Freehold banking premises, &c., in London and country—Total cost, £166,827 19 1= 542,882 10 3

Less, at credit of depreciation fund £30,110,498 4 9

The above report having been read—It was

Resolved unanimously,—That the same be adopted and printed for the use of the proprietors.

Resolved unanimously,—That John Kingston, Esq., Sir James Sibbald David Scott, Bart., and Duncan Macdonald, Esq., be re-elected directors of the company.

Resolved unanimously,—That Charles Barclay, Esq., be elected a director to supply the vacancy in the direction.

Resolved unanimously,—That this meeting learns with the greatest satisfaction that in the interest of the public, as well as of bank proprietors, legislation, with a view of limiting the liability of shareholders, has received the support of the directors, and desire to strengthen their hands by a strong expression of opinion of the expediency of such legislation.

Resolved unanimously,—That a vote of sympathy from the proprietors be conveyed to Mrs. Robertson on the lamented death of her husband.

Resolved unanimously,—That the best thanks of the proprietors be presented to the directors for their very successful management of the affairs of the company.

Resolved unanimously,—That the best thanks of the proprietors be given to William Holt, Robert Fergusson, and Thomas George Robinson, the general managers, and to the branch managers and other officers of the company for their efficient services.

Resolved unanimously,—That the best thanks of the meeting be presented to the Chairman for his able conduct in the chair.

Extracted from the minutes by

W. HOLT, } Joint General Managers.
R. FERGUSON, }
T. G. ROBINSON, }

THE CONNOLLY MINE

(LIMITED).

Capital £30,000, in 12,000 shares of £5 each, of which 2000 are now offered for public subscription.

Payable:—£1 per share upon application, £1 on allotment, and the remainder as required, in calls not exceeding £1 per share, and at intervals of not less than three months.

DIRECTORS.

J. G. FANSHAW, Esq., 2, Halkin-street West, Belgrave-square.

Colonel EVELYN, Brooke House, Ascot.

S. B. K. JOHNSON, Esq., Park Villas, Teddington.

ROBERT MILLS, Esq., 13, Gough-square, Fleet-street, E.C.

F. R. M. GOSSET, Esq., Portlough, Sussex.

BANKERS.

The UNION BANK OF SCOTLAND, 62, Cornhill, London.

SOLICITOR.

GEORGE J. BATTERS, Esq., 76, Old Broad-street, London.

SECRETARY—Mr. JOHN H. TILLY.

OFFICES: 37, QUEEN VICTORIA STREET, LONDON.

ABRIDGED PROSPECTUS.

This company is formed for purchasing the interests of the British Mining and Milling Company in the well-known Connolly Mine, situated in the Eureka Mining District, Nevada, and close to the celebrated Richmond, Eureka Consolidated, and other rich mines, together with the valuable hoisting machinery, drill, and other appliances.

During the past year ore to the assay value of about £16,000 has been raised from the mine. This would have sufficed to have paid a dividend, but it has been chiefly expended upon work properly chargeable to capital. By the addition of the capital now proposed to be raised the entire net proceeds of the sale of ore will be available for dividends to the shareholders.

The confidence of the vendors in the property is shown by their having agreed to accept the entire amount of the purchase-money in fully paid up shares in this company, which has been fixed at the sum of £45,000.

The directors refer with confidence to the reports on the mine from Captain Rickard, manager of the Richmond Mining Company, and Captain Drake, manager of the Eberhardt Mining Company, whose practical experience entitles their remarks to the greatest consideration. These remarks clearly show that the prospects of the mine fully warrant the expenditure of further capital for development, which, when completed, justify the directors in believing that the Connolly Mine will rank with the best paying dividend mines in Nevada.

The directors are all large shareholders in and directors of the British Mining and Milling Company (Limited), and as such are interested in the shares paid as purchase money.

The only contract entered into is dated May 2, 1879, and is made between the British Mining and Milling Company (Limited), of the one part, and John H. Tilly, Esq., as trustee for and on behalf of the Connolly Mine (Limited), of the other part. This contract and the memorandum and articles of association and original reports may be inspected at the offices of the company, any.

Full prospectuses and forms of application may be obtained at the solicitors, bankers, and offices of the company.

Should no allotment be made, the deposits will be returned in full.

Captain Rickard in his report states: "The mine so far has been worked economically, and in a miner-like manner. I estimate the amount required to explore this property a depth of 300 ft. deeper at \$25,000, and by the appearances of present lower workings the property will justify the expenditure of a much larger sum."

Consolidated Drake states: "There can be no doubt that the Connolly Mine is on the same great ore channel upon which is located the properties of the Richmond Consolidated, the Eureka Consolidated, the K. K. Mine, the Jackson, and other good mines now being successfully worked, and there is no doubt in my mind that when the management of the Connolly Mine shall furnish the means for the systematic and energetic working that it deserves (and which the above-named mines have received), it will develop a property equal in value to any of them. I believe that the outlay would shortly be returned with a handsome profit."

PROVISIONAL PROSPECTUS OF THE

CROOK BURN MINING COMPANY

(LIMITED).

To be incorporated under the Companies Acts of 1862, 1867, and 1877, by which the liability of the shareholders is limited to the amount of their shares.

Capital £6400, in 6400 shares of £1 each.

Payable as follows:—2s. 6d. per share on application, 2s. 6d. per share on allotment, and remainder at the option of the directors.

Calls not to be made at less intervals than Three Months, and no call to exceed 2s. 6d. per share.

DIRECTORS.

THOMAS GRAY, Esq., Newcastle-on-Tyne.

THOMAS SHELDON, Esq., J.P., Jarrow.

WALTER SCOTT, Esq., Newcastle-on-Tyne.

T. B. WINTER, Esq., Newcastle-on-Tyne.

JOHN HARPER ROBINSON, Esq., Newcastle-on-Tyne.

(With power to increase the number to seven.)

BANKERS—The NATIONAL PROVINCIAL BANK OF ENGLAND,

Newcastle-on-Tyne.

SOLICITORS—Messrs. MATHER, COCKROFT, and MATHER, Bank Chambers, Mosley-street, Newcastle-on-Tyne.

Messrs. HOYLE, SHIPLEY, and HOYLE, 20, Collingwood-street, Newcastle-on-Tyne.

BROKERS—Messrs. J. S. CHALLONER and SON, 56, Dean-street, Newcastle-on-Tyne.

Mr. J. STRAKER WILSON, 6, Grey-street, Newcastle-on-Tyne.

SECRETARY—Mr. C. W. HARRISON, 25, Westgate-road, Newcastle-on-Tyne.

This company has been formed for the purpose of acquiring the lease of and working the lead and other minerals in a plot of ground situated in the county of Cumberland, where the said county is separated from the county of Durham by a stream or rivulet called Crookburn, about midway between the towns of Alston and Middleton in Teesdale. The main turnpike between these places passes near the property for a considerable distance. The sett is a mile in length, and on the average nearly half a mile broad. It contains within its boundary a complete network of mineral veins, running at angles that form the most promising intersections for the production of lead ore. The four north and south veins laid open at Green Hurth Mine adjoining, traverse the entire length of the sett. They are known at Green Hurth as Nos. 1, 2, 3, and 4 veins. No. 4 vein has the same throw or dislocation as No. 1 vein, which is now very rich, but has not yet been worked much at Green Hurth. Its appearance, however, where out into, indicates that it will be equally as profitable as the No. 1 vein now working. These veins are crossed obliquely by the Providence vein (see plan), formerly very rich, and also by two veins called Metal Band veins. These veins are again intersected by a number of east and west veins, well known in the district—viz., Hardshins, Lady vein, Dow Green, Strong vein, and Tyne Green veins, and others from the west. The Serath Head veins and others, worked rich in W. B. Beaumont's property, must also come in from the east. One of them—viz., the Old Serath Head vein—is, judging from its mineral and bearing, probably what is known as Providence vein, in Tynehead Manor—altogether from fifteen to twenty veins.

The situation of this property is in the heart of the richest lead mining district in England, and is entirely unworked. It contains the proved lead bearing rocks now working at Green Hurth above Water Level, and below this the same section as produced such enormous quantities of ore at Tees Side Mine. Both of these mines are less than a mile distant from the sett.

In close proximity to the main turnpike, leading to two railway stations, will be a great advantage to the company in the ready facility thus afforded for the transmission of lead ore and receiving timber and stores at the mine; whilst much outlay will be thus avoided in the cost of road making, which is sometimes a serious item in lead producing districts.

The property is held under a lease from Edward Carleton Tufnell, Esq., and Col. Molyneux Byng, Lords of the Manor of Tyne Head, at very reasonable dues—viz., one-tenth in lead ore above what is understood as Water Level here (the Tyne Bottom Limestone), and one twentieth below the said level or limestone.

The Prospectus, Reports, and Plan of the above may be obtained from the SECRETARY, or Brokers.

UPWARDS OF ONE-HALF THE SHARES ARE ALREADY BESPOKEN.

May 8, 1879.

M. R. TREDINNICK, DEALER IN STOCKS AND SHARES,

CONSULTING AND ADVISING MINING ENGINEER,

7, UNION COURT, OLD BROAD STREET, E.C.

Mining Correspondence.

BRITISH MINES.

ABERLYN.—John Roberts, May 8: The blende lode in No. 2 is looking very much the same both in the forebrest and behind the end as it has done for two or three weeks past. I am pleased to say that there is a great improvement in the end in this level, which is being driven on the shale part. The lode is looking well for blende, which is of such quality that it will require but little dressing. The machinery is working, which will enable us to reduce the blende-stuff at the least possible cost. I hope by the end of the month to get the first sampling.

BLAEN CAELAN UNITED.—Jonathan Pell, May 8: The improvement reported last week in the end of the 30 driving east is fully maintained, and all is going on satisfactorily both at surface and underground.

BLUE HILLS.—S. Bennetts, P. Vian, May 8: The lode in the 30 east end is about 2 ft. wide, and worth 3d. per fathom, and from its general appearance we think will shortly improve. The stopes in the back of this level are worth respectively 2s. and 10d. per fathom.

BODIDRIS.—H. Hotchkiss, May 7: Maes-y-pwll Lode: The 60 driving east on this lode is now being urged forward with a full set of men, in order to meet with the run of ore lately discovered in the rise in the back of this level. The bearing part of the lode is about 4 ft. wide at this point, and presents a fine appearance, being composed of carbonate of lime, gossan, and blende. The rise in the back of this level maintains its promising character, and is producing lead ore as last week. We are now confining our workings at this place to rising only, in order to meet the new shaft which we have just commenced from surface, and as we have full set of men at each point of operation we hope to effect a communication in two months from this date. When this object is accomplished we shall be in a position to deliver the orestuff to surface at a much cheaper rate. Good stopping ground for lead is being left in both ends of the rise before referred to, and at one place (in the west end) will produce 1 ton per fathom. I have to-day forwarded per rail to the London offices a box of specimens of the lead ore taken from this lode, so that those interested may form an idea of the character of the lode. Beyond a slight change for the better in the 45 east, upon main lode, I have nothing else to report this week.

B. & L. UNITED.—N. Bray, May 3: Ritchie's engine-shaft is now down 10 fms. 2 ft. below the 90; the ground lately has eased for sinking, and, agreeable to the directors, I prefer making the lift 12 fms. instead of 10 before cutting lodge and bringing down machine kibble, after which I have no doubt we shall have to drive a short cross-cut north and south to prove the lode before deciding on the most promising part to extend levels upon east or west, or probably both. The rise in the back of the 70 is up 2 fms. 4 ft.; lode from 3 to 4 ft. wide, producing a little lead ore. This point is at the eastern extremity of the ore ground, and not in the most productive part. The same remark applies to the position of the winze, which is down 9 ft. below the 60. The object of making this communication so far east is for facilitating future operations by extending the ventilation.

CLAMMUNA.—J. Roberts, W. Sandoe, May 8: We expect that we shall get in all the buckets of the large water-wheel by the end of the week, and the launders are being made. The top lift of pumps is already fixed, and the rods complete, and all other points are being pushed on with all possible speed.

CLOGAU (Welsh Gold).—W. Alledale, B. Ramsay: Report for the month of March: In the 15 west the lode has improved during the first week. We then came across a white band, which unsettled the lode, but during the last week we cut this away, and have now come into better ground, and the band contains a little visible gold; we have four men working here. In the 15 east the ground showed steady improvement all through the month, the blismuth getting stronger and stronger, and on March 28 we cut visible gold: three men, and occasionally one lad, are employed in this place. Bransford Lode: We cut gold here almost daily all through the month till the 28th, when we came across a joint; we have not seen any gold since. This lode is so changeable that we might still come upon gold again, so we wish to keep on a little longer. It is from this place that all the gold except a few pieces has been obtained during the last two months. We began the crushing and amalgamating last Monday. First class stuff, 90 lbs.; amalgam, 42 ozs.; second class stuff, 580 lbs.; amalgam, 114 ozs.; total, 158 ozs. Yield of gold, 45 ozs.

CO. BARTIN.—J. Comer, May 8: The lode in the north-west adit level has improved a little in appearance since last reported, and producing a little more lead ore, but not enough to value. In the winze sinking below the adit level, on the caunter lode, the lode extends over the whole width of the winze—5 ft.—with a leader on the footwall about 1 ft. wide, which is producing beautiful stones of silver-lead ore. In the adit cross cut we have just intersected a flookan crossing full of mundie and fine lead. It has very much the appearance of the flookan wall of a lode. I hope to see more of it in a few days, when I will advise you.

CWMYB WITB.—May 7: During the past fortnight our progress in sinking No. 1 winze below Gill's upper level on the new lode has been very much impeded by an increase of water in the last 6 ft. sinking. Fearing a further increase in depth, we purpose stopping the sinking (as we are under 11 fms. under Gill's level), and commencing to drive for a 10 ft. level, leaving 6 ft. for a deposit for the water. The lode in the bottom of the winze is 3 ft. wide, and worth 1½ ton of lead ore per fathom, with a good lode in both ends of the winze. The lode in the No. 2 winze below Gill's is 5 ft. wide, composed of lead ore and blende, but not in sufficient quantity to value. It is a promising-looking lode. We have 9 ft. more to sink to complete the required depth for a 10 ft. level. In the 15 cross-cut driving north we have driven 18 fms. since we commenced, and the ground still remains favourable for driving. In Gill's cross cut driving north we are still meeting with cross-joints and branches, but of no value. Our stopes throughout the mine have rather improved since our last setting day. The four pitches at King-side shaft are without any change worthy of remark. We are now pushing on with the dressing of our tributaries' ore, which has been under water during the winter. The weather continues fine for surface work. Samples of 45 tons of lead ore were sent out on the 29th of last month for sale on May 12.

DE BROKE.—J. Phillips, May 7: The lode in the 55, driving east of Wilson's shaft, is nearly 4 ft. wide, of a very congenial nature, and producing fine stones of mineral and a mixture of good stuff for dressing. The stopes east and west of winze below the 25 is producing from 25 to 30 cwt. lead ore per fathom. The other stopes at the 25 is not quite so good and regular in product as per fathom. The tribute pitch below adit continues to yield good solid ore. I have to-day sent out samples of 22 tons lead ore, including tributaries' raisings.

D'ERESBY CONSOLS.—J. Roberts, W. Sandoe, May 8: In the end driving west towards Cob

log this 12 ft. square and a good height, so as to have plenty of room when we begin sinking. We shall finish the delivery of the 12th wagon of ore to-morrow. It will contain the usual quantity—7 tons 4 cwt. The millwright will have the dressing machinery in order to-morrow, so we will now be able to get this work and dress up some of the stuff that has been accumulating lately, and also to work up the slimes.

GUNSLAKE (Clitters).—William Skewis, John C. Seacombe, May 8: The engine-shaft is sunk the required depth for cutting the top and trip plates at the 220, and the men are set to drive west 2 fathoms below putting in skip-rods, &c., for safety for the men. The lode in the 212 east is worth 17 per fathom. In this level west the lode is ordered by a cross-course. The lode in the 200 east is producing saving work for copper ore. The lode in the 188 east is worth 67 per fathom. The lode in the back of this level is worth 101 per fathom. In this level west the lode is worth 67 per fathom. The lode in the 176, both east and west, is disordered by a cross-course. The lode in the 164 west is producing saving work for copper ore. The lode in the back of this level is worth 141 per fathom. The lode in the 152 and 128 is poor. The lode in the back of the 152 is worth 91 per fathom. The men have commenced building the boiler-house, and we are making all the progress we possibly can with all the other work.

HERDSFOOT.—P. Tenby, May 8: On Monday last we met with a crosshead in the 205, which disordered the lode: it has been taken down to day, and it is producing some good patches of lead ore, but still very much disordered. No. 1 lode has improved, now worth 20 cwt. of ore per fathom. No. 2 is worth 20 cwt. of ore per fathom. No. 3 is worth 15 cwt. of ore per fathom. In the 190 north the lead of lead (discovered last week) is fallen off; the lode is still 6 ft. wide, and lead throughout the lode. The men in the new shaft are making the usual progress. No other change to report this week.

HINGTON DOWN CONSOLS.—T. Richards, May 8: I beg to inform you that the three pitches in the back of the 120, west of Bailey's shaft, continue to yield fair returns, and the lode will produce 101 worth of ore per fathom, and is being worked on an average tribute of 125. 6d. in 11. In the back of the 110 the lode is still of great promise, and being in whole unbroken ground to surface is an important point, and it is confidently expected will lead to further results. There is a tribute pitch working in the back of the 55, in the eastern part of the mine, at 13s. 4d. in 11; this being below the discovery made some time since in the back of the 45 the indications are good, and it is hoped will lead to a discovery here also. The lode in the tribute pitch in the back of the 45, in the eastern part of the mine, is still continuing its productiveness, being now worth 3 1/2 tons of ore, or 201 per fathom, and judging from present indications and appearances it will continue. I would observe that this ground is now being worked at 4s. in 11. In the deep adit level, driving west on the course of the lode, the indications are very good; the lode is of large size, composed of capel, quartz, gossan, priam, and mudiand, with rich stones of grey, black, and yellow copper ore, and is of very great promise. In driving the deep adit south, as advised last week, another branch has been intersected, containing capel, quartz, gossan, and mudiand, with some black oxide of copper intermixed; this branch will no doubt unite with the other branches lineally on its course, and also in depth, and I am now of opinion that it is one great lode divided at this point, and from the general character of the ground surrounding being favourable, granite with such very strong indications of capel, quartz, gossan, mudiand, priam, &c., with copper ore of such good quality intermixed. This lode will, when fairly developed, lead to large discoveries—probably some good bushes of ore at the present level—but with more certainty in depth I would still advise the south level being continued for a time, as other lodes may be near at hand, until further search shall have been made both east and west on the present lode, so as to be better informed where the most advisable point would be for a shaft for the full development of this great lode in depth. On the whole I consider the prospects of the mine very good.

LADYWELL.—Arthur Waters, May 8: The new south shaft is now about 12 1/2 fms. below the 16; ground still very hard. The lode in the 32, north of Webster's winze, is 3 ft. wide, composed chiefly of black gossan, and worth for lead ore about 10 cwt. per fathom. The same level south of winze is at present in a lode 2 1/2 ft. wide, composed of carbonate of lime, well spotted with lead ore, but not to value. We have two stops at the level in the 16 south, one in the back the other in bottom, worth together about 2 1/2 tons per fathom. Tribute pitches are as for some time past.

MARKE VALLEY.—William George, James Stenlake, May 9: We beg to hand you the following setting report.—The driving of the 90 east west to be continued as per bargain, not yet completed; the lode here is without alteration since our last report. To stop the south part of Rosedown lode below the 53, by four men, at 61 per fathom; yielding 5 tons of ore per fathom. To stop or strip down the north part of the lode in the bottom of the 50, by six men, which yields from 4 to 5 tons of ore per fathom. To stop the back of the 50, by four men, at 21. 10s. per fathom; yielding 2 1/2 tons of ore per fathom. To stop the bottom of the 40, by four men, at 31. 10s. per fathom; yielding 3 1/2 tons of ore per fathom. Two stops in the back of the 40, by four men each—No. 1, at 21. 5s. per fathom, yielding 3 tons of ore per fathom; and No. 2, at 21. 10s. per fathom, yielding 2 tons of ore per fathom. To stop the back of the 20, by four men, at 41. per fathom, yielding 4 tons of ore per fathom. To drive the 10, by four men, at 31. 10s. per fathom; lode 3 ft. wide, composed principally of gossan, with spots of ore and mudiand intermixed. To stop the back of the 10, by four men, at 31. 10s. per fathom; yielding 2 tons of ore per fathom. To drive the shallow level west from the rise in the back of the 10, by two men, at 41. per fathom; the lode here has improved during the past week—it is 4 ft. wide, with a leader about 6 in. on the footwall, and yielding 1 ton of ore per fathom. In addition to the above we have set five pitches to ten men, at tributes from 11s. 6d. to 13s. 4d. in 11.

MELANEAR.—Gibbs, May 8: The lode in the 30 fm. level, west of Gundry's shaft, is 2 ft. wide, and worth 1 ton of copper ore per fathom. The rise in the back of this level is worth 1 1/2 ton of copper ore per fathom. The lode in the 40, west of the shaft, is 1 ft. wide, and producing good stones of copper ore. The lode in the 60 fm. level, west of shaft on the north part, is 2 ft. wide, and worth 1 1/2 ton of ore per fathom. The lode in the 60, west of shaft on the south-east part, is 4 ft. wide, and worth 2 1/2 tons of ore per fathom. The lode in the 70, west of shaft, is 3 feet wide, and worth 1 1/2 ton of ore per fathom, and a little saving work for lead. The lode in the 80, west of shaft, is 4 ft. wide, and worth 2 tons of ore per fathom. The lode in the 90, west of shaft, is 4 ft. wide, and worth 3 tons of ore per fathom. The rise in the back of this level, west of shaft, is also worth 3 tons of ore per fathom. The winze in the bottom of this level, east of shaft, is communicated to the 100, which has greatly improved the ventilation of that level, and has also laid open a good piece of stopping ground. We have cut through the south part of the lode in the 100, west of shaft, and find it to be 10 ft. wide, composed of spar, blende, and good stones of copper ore, with a leader on the north wall about 3 ft. wide, and worth 2 tons of ore per fathom. The lode in the 100, east of shaft, is 3 ft. wide, and improved to 2 tons of ore per fathom. Skip Shaft: There is no change in the 70 cross-cut, south of this shaft, except that the ground is again a little better for driving. We are daily expecting to cut the lode in the 100 south on the cross-cut west of shaft, as we notice it is getting both more wet and mineralised. There is no other change to notice in any of our underground operations.

MINERAL CORPORATION OF GREAT BRITAIN.—William Bennett, May 8: HAFNA AND HIGH HAFNA MINES: No. 3 Adit: The lode in the end is still looking well, quite equal to last report, and is worth 1 1/2 ton of blende and 15 cwt. of lead to the fathom. The same remarks apply to the lode in the rise in back of No. 3 level. At surface everything is going on satisfactorily.

DEYN CANADON AND GREAT D'ERESBY: There is nothing new to report since my last.

MONYDD GORDDU.—James G. Green, May 7: There is no particular change in any of the bargains since I wrote you last week, excepting a slight improvement in the 12 west, now worth 15 cwt. per fathom. We are not able to dress, owing to a short supply of water. We have sent the ore away to Mr. A. Eytton—price, 111. 1s. 6d. per ton. No time will be lost, as soon as there is a change in the weather, in getting together our usual sampling.

MORFA DU.—T. Mitchell, May 8: The lode in the back of the 48 is improving again; the lodes opening out wide, and yielding good bluestone. The lode in the back of the 38 is looking very well, and yielding good ore. The lode in the winze sinking below the 38 is also looking better. We hope shortly to get a hole through to the 48.

NORTH D'ERESBY MOUNTAIN.—W. Bennett, May 8: The lode in No. 2 adit continues to improve as we advance into the rising ground; the part of the lode now being driven on is 4 ft. wide, all good saving work for lead.

NORTH TREKERRY.—M. George, May 8: The lode in the 38, driving west of engine-shaft, is 3 1/2 ft. wide, composed of quartz, mudiand, and copper ore; this end is driven 3 fathoms, and we have about 8 fathoms further to drive to get back under the ore gone down in the bottom of the 24. The lode in the 24, driving west of engine-shaft, is a little disordered, now 2 ft. wide, and worth 1 ton of copper ore per fathom. The lode in the 12, driving west of cross-course, is 1 ft. wide, and yielding copper ore to save. The lode in the winze sinking below the 12 is 3 ft. wide, and worth 1 1/2 ton of copper ore per fathom. This lode in the rise in the back of the shallow level is 2 ft. wide, and worth 1 1/2 ton of copper ore per fathom. The men are now employed in building a dry, the dry in the western part of the mine being too far from our present workings. Our engine is working about 3/4 strokes per minute, and as the surface drains the underground water will get gradually less, and we shall be able to work productive ground at present under water.

PANDORA.—W. Nottingham, May 7: I have nothing new to report from underground this week. The different bargains are equal to last report, and are being pushed on steadily, and at surface we are keeping the dressing pan and machinery in full work, and although we are only running our water by day for dressing purposes, the reservoirs are getting very low. We have had an extremely dry spring, and the weather is still cold and dry, with a fresh cover of snow on the mountains this morning. The lead and blende just sold will be weighed off at once.

PARYS MOUNTAIN.—T. Mitchell, May 8: We have some little change in the 90 south this week; the lode is getting easier, and better progress is being made in the driving. The 90, east of cross-cut, continues much the same as when last reported.

PATELEY BRIDGE.—C. Williams, May 8: I cannot observe any change in the various ends and tribute pitches to report upon this week. The Rake vein in the 30 east is looking as favourable as ever, and if we are not greatly mistaken we shall open into a fine body of ore here soon. The 30 north-west on Fielding's vein is worth 1 ton of rich lead ore per fathom, and improving; and the sump coming down from the 20 in advance of this level is draining fast, so we shall have a fine section of tribute pitch laid open here shortly. Machinery: We have completed the T bob for the sump winze, also the timber foundation upon which it rests, and we have commenced building up the two columns of steam and water pipes from the engines, and so far our progress has been favourable, but the contractor is very slow in forwarding them here, and I am afraid from communications received that it will take some time yet to have all delivered.

PENHALLS.—S. Bennett, P. Vian, May 3: There is nothing further seen in the 70 east since last reported on. The two stops in the back of this level are looking very satisfactory, and worth 121 and 151 per fathom. The lode in the winze below the 30, east of flat roof shaft, is producing some rich tin stuff, although the leader is thus far small. In the winze below the 20 the lode is not yet found north of gossan.

ROMAN GRAVELS.—Arthur Waters, April 8: The shaftmen are now engaged putting in the last lift in the new engine-shaft. The various ends and stops throughout the mine are yielding the usual quantities of lead ore.

ROCKHOPE.—Thomas Tonkin, May 8: In the drive on the side vein the ground is not quite so hard, and the yield of ore a little better than for some time past; 21 cwt. is the quantity of ore this place will now yield per fathom. The lode in the back of the level near Gin shaft is yielding galena and white ore to the extent of 8 cwt. of ore per fathom. The drive in the 15 west on side vein,

near Low shaft, has fallen off in value within the last two or three days, and I have sent two of the men to the east on the same vein back to the old excavations. The rise is completed from the 25 to this level, and the ground for the most part which has been passed through is worth 10 cwt. of ore per fathom. I will now drift along this side vein both east and west from the rise, and afterwards stop and fill up the ground regularly as we ascend without the aid of timber, except for hopper in places. The stopes in the back of this level, near the Gin shaft, are similar to what I last reported—worth 5 cwt. of ore to the fathom. The ground in the flat east of Low shaft, and 8 fms. below the 25, is now worth 15 cwt. of ore to the fathom, and not quite so good to work as we have experienced for some time past; the vugs here are at times rich in carbonate of lead and white ore. The rise we are bringing up from the lower part of the mine will greatly facilitate the working of this place when led through, which will be about the end of the month. At the drive at the pump-sump the ground is keeping up its value—10 cwt. of ore to the fathom; we are able also to make fair progress, as the ground is getting rather better as we advance. The stopes below the 25, east of the Gin shaft, are moderately easy, and worth 8 cwt. of ore to the fathom. Further particular next week.

SOUTH CAMBRIAN.—A. Williams, May 7: In the adit level driving east the lode is gradually and steadily improving in produce and character, composed of kila, quartz, carbonate of lime, and gossan of a superior quality, and yielding now fully 3 1/2 tons of blende ore per fathom. One conversant with this mineral district need not hesitate to predict that we are passing over very large bodies of lead ore in this level. No other change to notice since my last.

SOUTH DARREN.—H. James, May 8: We have cut into the lode at the bottom of the shaft about 2 ft. 6 in., and it is looking more promising than I have seen it before, being stronger, and more mixed with lead and copper ore—saving work. In the 100, east from the winze, the lode has improved; present value 1 1/2 ton of lead ore per fathom. The lode in the 100 west is worth 2 1/2 tons per fathom. In the 90 east we have cut the cross joint seen in the 80, which disturbs the lode for about 4 fathoms in length, and we may expect the same here, but we shall soon be into the next bunch of ore, as the ground is a little easier for driving. The stopes in the back of the 90 are without material change since last report. No. 1 stop, in the back of the 80, is at present suspended. No. 2 stop is worth 1 1/2 ton per fathom. We have started to sink a winze in the 80, which I calculate on being completed to the 90 by the time the driving is under this point. The tribute pitches are yielding fair average ore stuff. The 45 tons of silver-lead ore, sold May 2, realised 6441. 12s. 6d.

SOUTH DE ERESBY MOUNTAIN.—W. Bennett, T. Bennett, May 8: There is nothing new to report on No. 1 adit; the men have been engaged nearly all the week in wheeling the accumulated stuff.—No. 2 Adit: We are pleased to inform you that the lode in the end is looking well; the lode is 4 ft. wide, and is all saving work for the dressing floors. We are still more convinced that South de Eresby Mine will prove a very productive one as depth is attained.

SOUTH MOLTON CONSOLS.—John Harris, T. May, May 3: We have to-day set the adit level to drive by six men at 71. per fathom; for 3 fms., or cut the lode; we have about 3 1/2 fms. further to drive to reach the point we suggested driving to a month ago, and so far as we can judge from surface indications we are on the verge of cutting through the hard channel of ground that has so impeded our progress during the past three months. The lode in the 90, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 80, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 70, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 60, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 50, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 40, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 30, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 20, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 10, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 0, east of the shaft, is worth 1 1/2 ton per fathom.

SOUTH MOLTON CONSOLS.—Thomas May, May 8: The ground in our adit cross-cut to-day is showing an improved appearance; the ground is not quite so stiff, and letting out a little water, and of a lighter blue kila. I hope in a few days to see some further improvement, and that we shall get into a good channel of ground.

STANKEVILLE.—Arthur Waters, May 9: No change has taken place at any point worthy of notice for some time past. The stopes and tribute pitches are yielding the usual quantities of lead ore.

TEESDALE.—John Slack, May 1: West End Forehead: There is no change to report in this working since my last; it is in nearly the same position as then described, being a hard close working. There is not or cannot be much change in the space of a week. The west end stop is improved, and improving with nearly every shot from the middle to the bottom part of the working. The west cheek is having very much over to the west, and the ore is laying close into it. I expect to see this place richer than we have ever had it. We have better ore immediately in front of us, and we are getting better ore. The lode in the 90, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 80, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 70, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 60, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 50, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 40, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 30, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 20, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 10, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 0, east of the shaft, is worth 1 1/2 ton per fathom.

TEMPLE.—May 7: Considerable progress has been made with the floors during the past week; the different dressing apparatus have been connected and put in motion, and ready to work well. All will soon be ready to commence active operations, with a view of clearing and restoring the ore. The lode in the 90, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 80, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 70, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 60, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 50, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 40, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 30, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 20, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 10, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 0, east of the shaft, is worth 1 1/2 ton per fathom.

TYN-Y-FRON.—E. Jones, May 7: We are getting on with the upper floors, which will be ready for the masons in a few days. We have opened a quarry of good stone for the buildings, wheel-pit, &c., close at hand.

VAUGHAN.—May 7: In the stopes over the 30 the lode is large, composed of blue clay-slate, beds of grit, carbonate of lime, blende, and lead ore, yielding of the latter, for the width of the lode, 27 cwt. per fathom. A surface prospecting operation, with a view of clearing and restoring the ore. The lode in the 90, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 80, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 70, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 60, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 50, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 40, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 30, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 20, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 10, east of the shaft, is worth 1 1/2 ton per fathom. The lode in the 0, east of the shaft, is worth 1 1/2 ton per fathom.

WEST PATELEY BRIDGE.—D. Williams, May 8: Craven Cross Shaft: Having completed the casing, dividing, and put in a substantial ladder-rod to the 67, as well as covering loom. We have commenced cutting plate, and driving upon the vein in each end of the shaft; size and value of which will be given in my next. The 65 is extended north-west of shaft 22 fms. 3 ft.; the vein during the last few days has further improved, being at present fully 4 ft. wide between two well-defined walls, carrying gossan, celestine, and branches of galena, worth 20 cwt. per fathom, the best ore being in the sole of our level, which is encouraging for the 67 in this direction. The cross cut north-east to the parallel veins has been extended 12 fms. 1 ft., and the south-west cross cut 13 fms.; the end of the latter is wet, and a little easier to work, and indicates that we are approaching a vein. We have during the week erected the air compressor and air-receiver on a massive bed of stonework, and fixed about 300 yards of air pipes underground and on surface, and hope to have all completed and the drill in full operation in the south-west cross-cut within the time specified in my last report.

WEST WHEAL TOLGUS.—May 8: The lode in the 165, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 155, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 145, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 135, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 125, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 115, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 105, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 95, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 85, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 75, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 65, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 55, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 45, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 35, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 25, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 15, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 5, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 0, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom.

WEST WHEAL TOLGUS.—May 8: The lode in the 165, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 155, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 145, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 135, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 125, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 115, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 105, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 95, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 85, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 75, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 65, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 55, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 45, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 35, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 25, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 15, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 5, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 0, west of Taylor's shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom.

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In 1871, and the note issue of late has been kept under 30,000. Caledonian stock reached par at the close of the day.

FRIDAY (Opening).—Egyptian Preference has advanced 1/2 (6 1/2 to 6 1/4). Caledonian are not able to sustain the extreme price they were pushed up to after hours last evening, and have declined 3/4. British show no change. Berwick has advanced 1/4. Brighton, A, 11 1/2 to 11 3/4; Great Eastern, 5 1/2 to 5 3/4; Turke, 11 3/4 to 11 5/8; United, 3 1/2 to 4 1/4; East Argentine Railway, 6 1/2 to 6 3/4; Mexican First Preference, 6 1/2 to 7; Second, 5 to 5 1/2; Rollers, 1 1/2 to 1 3/4; Mining shares are rather quiet. Eberhardt, 4 1/2 to 4 3/4; Frontino, 2 1/2 to 2 3/4; Antioquia, 1 1/2 to 1 3/4; Richmond, 3 1/2 to 3 3/4; United Mexican, 3 1/2 to 3 3/4; Leadhills, 1 1/2 to 2. Herodfoot shares are weaker, on it being understood that there is a falling off in the recent great improvement. Don Pedro, 1 1/2 to 1 3/4; Javali, 6s. to 8s.; Penrith, 2s. to 3s.; Parys Mountain, 8s. to 10s.; Port Phillip, 3 1/2 to 3 3/4; Gold Run, 1/2 to 3/4. **Two o'clock.**—A rally has taken place in Caledonians, which are now 100% to 100 1/2. Egyptian Preference has been up to 6 1/2, now 6 1/4 to 6 1/2. American Securities are firm. Erie shares, \$29 1/2; First Mortgage, 11 1/2 to 11 3/4; Second Mortgage, 7 1/2 to 7 3/4. **Four o'clock.**—Erie Second advanced to 7 1/2, 7 3/4; Mexican Railway, 1 1/2 to 1 3/4. **Five o'clock.**—Great Eastern touched 5 1/2, and Mexican Bonds 9. Egyptian Preference receded to 6 1/4, and Caledonian to 100 1/2, 100 1/4. Richmond, 7 1/2 to 8 1/4; Berwick, 1 3/4 to 1 5/8; Turke, 11 3/4 to 11 5/8; Ottoman Defence, 50 to 52; Chapel House Colliery, 1 1/2 to 1 3/4; Bilson and Crump, 2 to 2 1/4; Newport Abercrom, 4 to 4 1/4; Cardiff and Swansea, 1/2 to 1.

BERNARD R. KIRK.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MAY 9, 1879.							
IRON.		£ s. d.	£ s. d.	TIN.		£ s. d.	£ s. d.
Fig. GMB, f.o.b., Clyde.	2	3	0	English, ingot, f.o.b.	68	0	0
" Scotch, all No. 1.	2	4	0	" bars	69	0	0
Bars, Welsh, f.o.b. Wales	15	0	5	" refined	70	0	0
" in London.	5	2	6	Australian	66	15	0
" Stafford.	5	5	0	Banca	(nom.)	70	0
" in Tyne or Tees	5	5	0	Straits	66	15	0
" Swedish, London.	8	10	0	COPPER.			
" Nails, Welsh, at works.	4	15	0	Tough cake and ingot.	61	0	0
" Sheets, Staff., in London	7	10	0	Best selected	62	0	0
" Plates, ship, in London	5	12	6	Sheets and sheathing.	64	10	0
" Hoops, Staff.	6	15	0	Fiat Bottoms	62	10	0
" Nail rods, Staff. in Lon.	5	15	0	Wallaroo	62	10	0
STEEL.				Burra, or P.C.O.	62	5	0
English, spring	13	0	19	Other brands	61	0	0
" cast	20	0	40	Chill bars, g.o.b.	55	15	0
Swedish, seg.	13	0	0	PHOSPHOR BRONZE.			
" fig. ham.	15	0	0	Bearing metal	£105	0	0
LEAD.				Other alloys	£110	0	0
English, pig, common	13	12	6	BRASS.			
" " L.B.	14	0	0	Wire	7 d.	7 1/2 d.	
" " W.B.	14	10	0	Tubes	7 1/2	d.	7 1/2 d.
" sheet and bar.	14	10	0	Sheets	8	d.	8 1/2 d.
" pipe	18	10	0	Yel. met. sheath. & sheets.	5 1/2	d.	5 1/2 d.
" red	17	10	0	Nails composition	7 1/2	d.	7 1/2 d.
" white	25	0	0	TIN-PLATES.*			
" patent shot	18	10	0	per box.			
Spanish	13	5	13	Charcoal, 1st quality	1	16	1
NICKEL.				" 2nd quality	1	0	0
Metal, per cwt.	15	0	20	Coke, 1st quality	0	17	6
Ore, 10 per cent. per ton	24	0	25	" 2nd quality	0	16	0
QUICKSILVER.				Black	0	16	0
Flasks of 75 lbs., ware.	6	3	6	Canada, Staff. or Glas.	11	0	0
SPELTER.				at Liverpool	10	0	0
Silesian	14	10	0	Black Taggers, 450 of	30	0	0
English, Swansea	16	0	0				

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 6s. for each X. Terms—plates 2s. per box below tin-plates of similar brands.

REMARKS.—It is believed by many that trade has already passed its lowest depth of depression, and that no further material depreciation in the value of metals is expected. Whether a revival in trade is about to take place time alone can disclose, but it is greatly to be hoped that the sanguine views which are beginning to be expressed may shortly be realised, and that as the season advances a recovery may be forthcoming, but according to present appearances it would seem that any improvement that may set in will probably be of a gradual rather than of a sudden character. It is observed, however, that oversupply continues to have a most injurious effect upon our markets, and as long as producers continue to send forward supplies so much in excess of the requirements of the trade there can be but little chance of any permanent recovery taking place; but if, on the other hand, they will afford time to diminish down to reasonable figures, there is little or nothing to stop quotations rising considerably above present rates. It is the unfavourable statistics which are repeatedly being augmented which not only check speculation, but influence dealers and consumers to limit their purchases to current requirements only, which are particularly limited. Operators are fully aware that as soon as stocks are sensibly reduced higher prices will be the order of the day, while on the contrary they are as equally convinced that while the markets remain overburdened any rise that may occur can be only temporarily sustained, for regular consumers will decline to purchase for stock while there is so much risk incurred of forced sales taking place.

At present in most metals there is no established improvement in prices upon the beginning of the present year, and most sellers since the commencement are selling at lower rates, but on account of the heavy losses they make at selling at anything below ruling quotations, it is not likely that prices will recede to any further great extent, and, therefore, buyers should not wait too long before they effect contracts or they may find themselves at greater disadvantage than they would be by placing their orders while they can secure low prices. Of course, while stocks are so extremely high there is no need for any immediate action on their part, but they should at all times be on the qui vive, as probably when any decrease does occur speculators will come forward and enhance quotations far above what they are now, and thus place all who have not effected their purchases at a much greater inconvenience than there would be by laying in stock at the present time.

COPPER.—The increased value of this metal, which was evidently anticipated a few weeks back when the announcement of war on the West Coast of America was made, has not yet taken place, and prices instead of showing any enhancement have fallen away, and lost even the little recovery which was made through speculators having for a short time made themselves more prominent than they had previously been doing, and came forward and entered into a few transactions. It is the old question of over-production that is injuring the trade to such a vast extent, and although the statistics published on the 1st instant showed a slight diminution in the total stock in existence, there must be a reduction of several thousand tons yet before any sensible and permanent improvement can take place in prices. It is most remarkable that producers cannot see the utter folly of continuing to over-weight the market to such an extent as they are now doing, and it is difficult to imagine what their object is in repeatedly pressing sales. There is a report current that one of the largest companies intend producing this year 2000 tons of fine copper in excess of what they sent forward in 1878, and what with the heavy supplies from other quarters which have been made all through the present year it is greatly to be feared that it will be some lengthened period ere stocks are reduced to reasonable figures.

IRON.—This market has remained nearly stationary all the week, and sellers show little or no alteration in their quotations. However, some keep tolerably firm, especially North of England makers, on account of the higher prices demanded for coal, whereas ironmasters in other districts are slightly easier, and display a good deal of eagerness to secure orders, though they are evidently unable to sell at any lower rate, as the cost of production is still in excess of present prices. The reports from Middlesbrough show that business remains restricted in that part of the country, and masters continue to quote nominally at last week's figures, the price asked for No. 3 being 39s. to 40s., and inferior qualities at 38s. to 39s. 6d., and very little business doing in these latter, though a fair number of warrants for the former are circulated. No. 4 forge is quoted at 35s. to 35s. 6d., though next to nothing doing at these figures. A slight diminution is said to have taken place in stocks in makers' hands for the last month, according to the Cleveland ironmasters' returns, published last Saturday, and the total reduction now amounts to 14,357 tons, a reduced production is also reported to have taken place of 33,773 tons as compared with the month of March. The deliveries to foreign ports have increased to the extent of nearly 10,000 tons upon what they were in April, 1878, but the coastwise shipments have decreased 13,671 tons for the same relative periods on account of the small quantities taken for Scotch account. The total stock at the end of April amounted to 190,663 tons. There was in public stores 104,190 tons, and in makers' hands 57,890 tons. At the close of the month there were only 63 furnaces in blast, being 23 furnaces less than there were at the end of March. The manufactured trade shows no particular change, and keeps very dull. Prices, however, are somewhat firmer, in consequence of the rise in the value of the raw material. Plates and bars are now quoted from 2s. 6d. to 5s. per ton higher. The present rate for the former being 5s. to 5s. 5d., and the latter 4s. 17s. 6d. per ton. The trade at Leeds is very much depressed both in respect of general merchant iron and the better classes. Masters are very badly off for orders, and consequently, the forges are most inactive. Prices show no alteration, sellers stating that it is quite impracticable to execute orders below ruling rates. The same remarks would rightly imply to the Sheffield makers, for no improvement whatever is stated to have taken place in this district, and producers are producing at so low rates that there is little or no margin left for profits. There are a few houses who are better situated than others, but the most active mills are so inferiorly employed that they are not turning out anything like the quantity they are capable of doing.

There is not much change to be reported from Wolverhampton, and sellers are

asking 7s. 5s. for good brands of sheets, though fair orders have been executed at rather under this price. Common plates, delivered in Staffordshire, are offering at 6s. 17s. 6d. A rather better demand has sprung up for bars, and contracts have been effected at 6s. per ton. There is very little business doing in pigs, and quotations are rather easier. There is more activity displayed on the Welsh markets than has of late been the case, and shipments are reported to have slightly increased. Prices, however, have not changed, and the demand, though a trifle better, is anything but satisfactory. The Glasgow warrant market has been rather flat during the week, and cash parcels were sold on Tuesday at 43s. 1 1/2 d. to 43s. 3d. per ton, and at 43s. 4 1/2 d. one month. Speculators have been most inactive, and consequently since then the price has not materially altered, to day's quotations being 43s. cash.

SHIPMENTS.	
For the week ending May 3, 1879	Tons 12,923
For the week ending May 4, 1878	8,553
Increase	4,370
Total increase for 1879	40,256
Imports of Middlesbrough pig-iron into Grangemouth—	
For the week ending May 3, 1879	Tons 5,455
For the week ending May 4, 1878	2,010
Increase	3,445
Total increase for 1879	19,398

TIN.—The market for foreign has been very dull all the week, and contracts have been made as low as 67 1/2 per ton. The inactivity which the principal holders are now showing would make it almost appear that they had lost considerable, if not all, confidence in the stability of the market, and if this is the case it can hardly be wondered at, for supplies continue to come forward so rapidly, and in such large quantities, that unless the chief movers can secure by far the larger portion of them there cannot be much chance of higher prices being realised for some considerable time to come, but, on the contrary, the reverse may be fairly anticipated, and, probably, lower rates will soon have to be accepted. There is not much change in the demand or price of English tin, and sales remain limited. It affords us much pleasure to be able to state that the English smelters have been graciously pleased to yield at once to the wishes of the commission houses in restoring the previous rate of brokerage allowed on English tin. This decision of the smelters will be thoroughly appreciated—first, because it restores what has always been considered only a fair and reasonable remuneration for the risk and trouble incurred by the commission agent; and secondly, because it will effectually remove any feeling of irritation which might have arisen by the enforcement of so hard a measure.

The question of commission is naturally a serious one to a commission house, more particularly when prices are low and trade is bad, but it is comparatively of little consequence to the wealthy smelters, for it can make very little difference to them whether a concession is made in the price or bestowed in the shape of commission; and we are glad that the matter has had its reasonableness, and that they have allowed themselves to be actuated by the highest and worthiest of all sentiments—that of regard for the interest and welfare of others. It is not perhaps altogether agreeable to retire from an advanced position, at the same time it displays both good sense and kindly feeling to immediately withdraw when the maintenance of that position is found to inflict material injury upon many who are ardently working in the same field of enterprise, and an expression of thanks is justly due to the smelters for the prompt and commendable manner in which they have acted in amending the recent announcement of the terms of sale of English tin. A Dutch sale of tin is announced for May 27, at Rotterdam, whither 250 tons of Banca will be sent.

QUICKSILVER has been less active during the past week, but is firmly held at 6s. 2d. 6d. Offers of 6s. for large quantities having been refused consideration.

LEAD.—Business in this metal continues much restricted, and although prices are still officially quoted at last week's figures, they are evidently not low enough to induce shippers to purchase yet awhile, and consequently the exports are comparatively very small. **SPELTER** is dull of sale, and Silesian is offering at slightly lower rates.

STEEL.—There is no improvement in the state of this market, and quotations remain unaltered.

TIN-PLATES continue without change.

Messrs. FRY, JAMES, and CO.—**COPPER** has held a sluggish course during the last fortnight, and there is nothing to foreshadow any immediate change. Prices have been fairly steady, but tending slightly downward. The prices obtained for 420 tons Cape ore sold by tender yesterday averaged 10s. 9 1/2 d. per unit, 30 1/2 per cent. produce. **IRON** is without change. **TIN** has been without any of its frequent fluctuations, and, in the absence of speculative dealing, the market has become flat, with a fall of about 1/2 per ton in prices. **LEAD** is again rather lower. **SPELTER** also is somewhat lower. **TIN-PLATES** are steady.

Messrs. HENRY ROGERS, SONS, and CO.—**COPPER**—A very fair trade was done in copper up to the Easter holidays, but subsequent thereto a great change came over the market, and prices began to drop. This was intensified by the heavy fall in Wallaroo copper offered for public sale on April 22. Since this period the demand seems to have fallen away entirely, and whether for home use or export only the smallest quantities appear to be required. In ordinary times the state of politics on the West Coast of South America would have started speculation in this metal, but a state of actual war, which many well informed people consider will be indefinitely prolonged, has not influenced the market in the slightest degree. The stocks have materially decreased in the last two months, but a much heavier reduction is still necessary before the price can be considerably influenced. The charges to the 30th April, 1879, were 14,000 tons, against 15,100 tons in 1878. **TIN.** This market was exceedingly dull throughout April, but prices, which being somewhat irregular, were maintained. Since the close of the month, however, there has been a drop in quotations, equal to about 3/4 from the highest point reached. **SPELTER.** A large trade was done early in April, and the rise in prices referred to in our last monthly issue was maintained till the middle of the month, when quotations fell away, and are now very little above the terribly low level at which this metal stood in the early part of March. **LEAD,** like spelter, had its rise and fall in price, but quotations are as yet hardly so low in comparison. There was a large trade done on the rise; for the present, however, the wants of exporters and consumers seem satisfied.

Messrs. RICKARDS and BUDD—**COPPER:** The war on the West Coast of South America has not yet produced any effect on supplies or price, but, if it continues, there must be interference both production and opportunities of shipment. In the meantime general business shows little signs of improvement. A few orders for manufactured for Russia have been booked, but the quantity is far below what is usual for spring shipment. **TIN:** The market is dragging, and 67 1/2 for Straits and Australian is about the nearest figure. As long as the holders pursue their present tactics doubtless prices will remain at or near the present figure. There will probably come a selling day before long. Smelters of English have reduced their discount from 2 1/2 per cent. to 1 1/2 per cent. The delivery of foreign out of warehouse, London and Holland, is—From Jan. 1 to April 30, 6559 tons, against 6253 tons in 1878 and 6444 tons in 1877.

Messrs. BROOKER, DORE, and CO.—**TIN-PLATES:** On the whole, the market is scarcely so firm, but the order book is not so empty as it was a few weeks ago. E. P. and W. Baldwin are especially fortunate in this respect, and have some difficulty at the moment in meeting the wishes of all their customers as regards delivery. **GALVANISED IRON:** Several important contracts have been placed lately, which have had the effect of somewhat lessening the keen competition, but until the colonial demand is again up to the average prices are not likely to advance. The present is a favourable time for buyers to make forward contracts where makers are willing to conclude them, as we are not likely to see prices lower, and a sudden important demand may send prices up very materially.

Messrs. PILLEY and ABELL—**GOLD:** The arrivals during the week comprise—23,269 from the Brazil, 41,700 from India, 15,000 from Australia; total, 80,000; of the above, consisting of sovereigns, were sent into the Bank; the balance, with the exception of the few sent into the Bank, was taken for export to Holland, Spain, and the Cape. **SILVER** has been in fair demand, and the price remained steady at 50d. to 50 1/2 d. until the 6th inst., when a large order came to hand for immediate shipment to Spain; recourse had, therefore, to be made to the German Government, who sold 70,000 at 50 1/2 d., the order being then complete the price relapsed slightly, and we quote the rate to-day as 50 1/2 d. nearest. The arrivals have been 34,830 from New York and 70,000 from Germany. The P. and O. steamer takes 53,500 to Bombay, the Cervantes about 200,000 to Spain, and the Nile 24,190 to the West Indies. **MEXICAN DOLLARS:** The market has again improved, and 49 1/2 d. was paid for a few small parcels to complete orders for the Continent.

Very little change has taken place in the MINING SHARE MARKET this week, and generally speaking prices are merely nominal. The mines mostly dealt in this week have been Herodfoot, Roman Gravel, South Condurrow, South Frances, Wheel Chiverton, Wheel Crebor, Van, Wheel Grenville, and a few others.

TIN continues very dull. Carn Brea shares have been flat at 30, sellers. Cook's Kitchen declined to 1 1/2. New Cook's Kitchen, 2 1/2 to 2 3/4, nominal. Wheel Grenville firm at 3 1/2 to 4 1/4. Dolcoath, 2 1/2 to 2 3/4; at the meeting in Cornwall the accounts showed a profit on the quarter of 2000, and a dividend of 5s. per share was declared. The tin sold (370 tons) realised 14 3/2 d. The report was very satisfactory. The bottom level (the 352) appears to be the richest in the mine.

South Crofty meeting was held on Friday, and it was resolved to carry on the mine. The accounts showed a loss on five months' working of 744, and a balance against the mine of 6728. West Frances, 5 1/2 to 5 3/4; the flat lode is expected shortly to be cut. East Pool, 10 to 10 1/2; Penrith, 1s. 6d. to 2s. 6d.; South Frances, 9 to 9 1/2; Tincroft, 9 to 9 1/2; West Bassett, 4 to 5; Wheel Agar, 3 1/2 to 3 3/4; Wheel Pevor, 9 to 9 1/2; Wheel Uny, 6s. to 7s. 6d.

COPPER MINES continue dull, and scarcely any business doing. Devon Consols firm at 1 1/2 to 2; East Caradon, 5s. to 7s. 6d.; Mellanear, 3 1/2 to 4; Parys Copper Corporation, 9s. to 11s.; Wheel Crebor, 5s. to 7s.; Hingston Down, 1/2 to 1; Wheel Seton, 6 to 8; Marks Valley, 10s. to 15s.

LEAD very dull, and lead mines depressed. Van declined to 18, sellers. Herodfoot fallen from 3 1/2 to 4 to 3 1/2 to 3 3/4; the report, al-

though very good, is not quite so good as last week's. Roman Gravel, 8 1/2 to 9; the directors have declared a dividend of 5s. per share. Aberllyn, 10 to 11; Bettws-y-Coed, 20s. to 25s.; Broddir, 1 to 1 1/2; Denbighshire Consolidated, 1 1/2 to 1 3/4; East Van, 1 1/2 to 1 3/4; Glenrhy, 7s. 6d. to 10s.; Great Laxey, 15 to 16; Leadhills, 1 1/2 to 2; Tankerville, 3 to 3 1/2; West Assheton, 15s. to 25s.; West Chiverton, 2 1/2 to 3; D'Eresby Mountain, 30 to 40; Clementina, 1 to 1 1/2; Minera, 9 to 10; Bwlch United, 25s. to 30s.; West Pateley Bridge, 2 to 2 1/2; Caron, 1 1/2 to 2 1/2. Frogoch, 2 1/2 to 2 3/4; the sale on Thursday, 120 tons, realised 8s. 6d. Grogwion, 2 1/2 to 3; Hartington Moor, 1 1/2 to 2; Crosswood, 1 1/2 to 2; Mawston, 1 1/2 to 2; Red Rock, 1 1/2 to 2; St. Harmon, 1 1/2 to 2; South Cwmystwith, 1 to 2; West Wye Valley, 1 1/2 to 1 3/4; Wye Valley, 1 1/2 to 1 3/4; Gwernymynydd, 4 to 4 1/2. At Pateley Bridge the 30 east, on Rake vein, is improving, and is apparently entering into another fine body of ore. Pandora, 5s. to 10s.; 24 tons of lead ore, at 8s. 7s., and 20 tons of blende, at 24s., was sold on May 5.

FOREIGN MINES.—Arendal, 3 1/2 to 4 1/2; Canada Gold, 2 to 2 1/2; Cape Copper, 27 1/2 to 28; Colorado, 1 1/2 to 1 3/4; Don Pedro North del Rey, 15s. to 17s.; Eberhardt, 4 1/2 to 4 3/4; Frontino and Bolivia, 2 1/2 to 2 3/4. Placerville, 2 1/2 to 2 3/4; the mill has been stopped for repairs. The quartz produced to date had yielded \$14 per ton. Blue Tent, 2 1/2 to 2 3/4; the annual meeting was held on Tuesday, and the prospects reported good for the coming season; a further clean-up, with a return of \$10,000, is announced. New Quebrada, 1 1/2 to 1 3/4; New Zealand Kapanga, 3 to 3 1/2; Panulillo Copper, 25s. to 27s. 6d.; Richmond, 7 1/2 to 8 1/2; Santa Barbara, 2 1/2 to 2 3/4. Fall Creek Water, 2 to 2 1/2; at the meeting on Tuesday a dividend at the rate of 5 per cent. per annum was declared out of profits earned to Dec. 31, 1878.

The Market for Mine Shares on the Stock Exchange has been scarcely so active as last week, although a fair number of transactions have taken place, and quotations show no considerable decline, whilst the feeling that the prospects of the future are brightening is so general that several new undertakings have been launched with every prospect of success.

Most prominent amongst these is the Missouri Lead Mining and Smelting Company, which is brought forward with an unusually strong direction—the chairman and a director of the Richmond, a director of the Great Laxey, and other gentlemen of commercial and mining experience composing the board. It will be seen from the prospectus, which appears in another column, that the company has been formed for the purpose of acquiring and working an extensive set of lead mines in Missouri, United States of America. Missouri has long been noted as the source from which America obtains its best soft lead. The various reports on the mines the company are about to acquire are considered to leave no doubt that they are exceptionally valuable properties. All the reports emanate from entirely reliable sources. The prospectus contains extracts from a report of Prof. G. C. Swallow, for many years State Geologist of Missouri; also extracts from a report by Mr. Theo. Sopwith, member of Inst. C.E., who is well known to the readers of the Journal in connection with lead mining in this country and in Spain. Mr. Sopwith is to be consulting engineer to the company, and Capt. J. B. Champion, who is also well known to many of the readers of the Journal as a thoroughly efficient and capable mining captain, is now in charge, and furnishes some satisfactory reports. The prospectus sets forth many advantages possessed by the properties that lead mines in this country do not have. The company will not have to pay any royalties, and the properties (which comprise an area of over 1000 acres) are heavily timbered, so that this expense will be merely nominal. All the mines are freehold, and are only 55 miles by rail from the city of St. Louis, which is probably the most important lead market in the United States; a ready and reliable market is thus very close at hand. As the United States have a protective tariff on lead of over 90 per cent., the company will also have this advantage in its favour. European competition is now entirely excluded from America as regards lead. The entire share capital is 90,000, (9000 shares 10s. each) divided equally into A and B shares. The directors invite subscriptions to the 4500 preference or A shares, which are entitled to a preferential dividend of 10 per cent. in cash year out of the sum available for dividends. With lead at 16s. in St. Louis, which is very low, the directors expect the company to pay dividends of over 30 per cent. per annum when the mines are fully opened up.

Amongst the new companies seeking the support of capitalists is "The Connolly Mine," which has been formed with a capital of 60,000, in shares of 5s. each, to purchase for 45,000, the interests of the British Mining and Milling Company in the well-known Connolly Mine, situate in the Eureka mining district, Nevada, and close to the celebrated Richmond, Eureka Consolidated, and other rich mines, together with the valuable hoisting machinery, drill, and other appurtenances. The shares in the British Mining and Milling Company (Limited) are held by a very small number of shareholders, who have spent a large sum of money, and (as they believe) fully proved the great value of the property, they require further capital to sink deeper and provide machinery for raising the considerable quantities of ore now in sight. Capt. Drake, manager of the Eberhardt Mining Company, states that the property is on the same great ore channel as the Richmond, the Eureka, and other good mines, and that if funds are provided to open up the mine systematically, the outlay would shortly be returned with a handsome profit. Capt. Rickard, manager of the Richmond Mining Company, also states that he estimates the amount required to explore the property 300 ft. deeper at \$25,000, and by the appearance of the present lower workings the property will justify the expenditure of a much larger sum. It would appear from the prospectus, which appears in another column, that ore to the value of about 16,000, was raised from the mine during last year. Estimating the output of the present year according to past returns, there would be sufficient to pay a handsome dividend on the small capital of this company, but with the increased means now proposed to be raised for further developing this valuable property, a much larger output may reasonably be looked for, and consequently a large dividend may be confidently expected.

The Crook Burn Mining Company, to which reference was made in the Journal of April 12, has now been formed, with an influential board of local directors, and a capital of 6400, in shares of 17s. each. The property of which the lease is to be acquired is well situated, about midway between Alston and Middleton-in-Teesdale, is one mile long by about half a mile wide, and is reported to contain a complete network of mineral veins running at angles that form the most promising intersections for the production of lead ore. The four north and south veins laid open at Green Hurth Mine adjoining traverse the entire length of the sett. The Green Hurth Mine has long occupied a position amongst the dividend-paying mines of the district. The Green Hurth mine is situated on the Providence vein, formerly so rich at a mine called Tees-side, and also by two veins called Metal Band veins. These veins are again intersected by a number of east and west veins well known in the district—Hardshill, Lady vein, Dow Green, Strong vein, and Tyne Green veins, and others, from the west. The Scraith Head veins and others, worked rich in W. B. Beaumont's property, must also come in from the east. One of these—the old Scraith Head vein—is, judging from its mineral and bearing, probably what is known as Providence vein in Tynehead Manor. There are thus altogether from 15 to 20 veins, all of which have been working to some extent, whilst some of them have been and continue to be worked to a considerable profit. The property has been carefully inspected and favourably reported upon by Messrs. William Yipond, Jacob Craig, Thomas Watson, and George Millman, all of whom are mining engineers well acquainted with the district, and engaged at the mines therein. The prospectus will be found in another column.

The Compagnie des Mines d'Or et Canaux d'Amador Volcano (Amador Volcano Gold Mining and Water Company) of California were announced a fortnight since as being about to offer on the French market 5200 shares (out of the total capital of 10,000 shares of 500 francs each) at 20 per cent. premium, and it is gratifying that it is now reported that the whole issue has been successfully placed, the subscription having been more than covered. Colonel Jules Berton is naturally annoyed by a statement, published in this place on April 25, that the Société Générale of London and San Francisco has long been to all intents and purposes defunct. A complete answer (which the gallant colonel will kindly accept as an apology so far as the Mining Journal is concerned) to the complaint is afforded by the declaration that the expression objected to was merely translated from the Crédit National—a French financial newspaper, the name of which is well known to the readers of the Journal. Of the Mining Bureau of London and San Francisco the Mining Journal knows absolutely nothing beyond what has from time to time been published in the Mining Journal; but it may be suggested, not only with regard to this enterprise, but with regard to every company or corporation having "a habitation or a name" in the Metropolis, and it can scarcely be supposed that either a commercial, a scientific, or a technical undertaking could be carried on (without offices), that there exists a ready and indisputable approximate test of the standing and solidity of every firm or company carrying on business in London. By consulting the Post Office London Directory, which is thoroughly reliable and accessible to everyone, for a series of years the exact date at which any concern was established, how long it existed, and when it ceased to do business in London can be quickly and accurately ascertained, as well as how frequently offices were changed. This is a test for respectability habitually applied in ordinary commercial matters, and is quite as applicable in the case of public companies.

The apparent error of judgment on the part of the executive of the Société Générale pour favoriser le développement du Commerce et de l'Industrie en France in not silencing the Crédit National and Mr. J. David by disproving the charges made, instead of having the minority talked down against time at the general meeting, and thus preventing a complete investigation, has been already referred, and for some time past both combatants have been very energetic; sometimes one having the advantage, sometimes the other. For the moment the greater amount of success appears to be on the side of the Crédit National. A paragraph has been going the rounds of the French Press something like: "Société Générale—A financial journal—Le Crédit National—containing violent attacks against the Société Générale—was widely circulated among the public, and sent gratuitously to the shareholders and clients of this society." Mr. David publishes a fac simile of this réclame, and of the Société Générale's advertisement manager's addition—"Bon à insérer d le . . . un franc la ligne.—A. Hammond."

This scandal should certainly be stopped, either by refuting the charges (which are loudly declared to be unfounded) or by showing that steps have been taken to prevent the recurrence of errors which may have been inadvertently made.

St. John del Rey, 270 to 280; the latest telegram from the mines at Morro Velho, dated Rio de Janeiro, May 1, states that the produce for the second division (10 days) of April was 11,500 oits., of the value of 4456l., the ley of the ore being 6.3 oits. per ton. Don Pedro North del Rey, 2 to 3; the mine captain's letter states that the gold has been derived exclusively from the south side openings, and ruled of an exceptionally low class. No alteration to note has taken place in the aspects of the lodes or its quality since our last, and the explorations, although some moderate samples have been taken from different points, yet nothing worthy of commenting on has been met with. The requisite repairs of the 60-ft. wheel are advancing fairly. The timber work is fixed for lifting the wheel to change brasses. The brasses are moulded, and all other work in connection with the same is advancing fairly. The hollow shaft is a beautiful fit, and hugs the axle remarkably tight, and will, in their opinion, prove a permanent cure, but it will take time to secure everything above the hollow shaft. A great number of visitors who have seen the wheel express great faith in the hollow shaft and admiration at the adjustment of its bearings, as not a hair can be put in between the shaft and flange joints. Almada and Tinto, 2 to 3; the profit for February and March was \$9000.

Richmond, 7 1/2 to 8; the usual telegram from the mines at Eureka, Nevada, states that the week's run was \$53,000, from 808 tons of ore. During the week the refinery produced doré bars to the value of \$38,000. No. 1 furnace is disordered. The manager writes (April 17) that operations both in the mines and smelting works have been carried on with usual regularity. The ore chambers are without any material change, still turning out the usual quota of ore. The furnaces are still doing good work; the No. 4 (hydrocycle) has been put to smelt the by-products from the refinery; there was a large accumulation which will take a month to smelt. Mr. Probert, writing April 18, states that the ore has not yet been reached in the 7th level cross-cut, but they have proved the connection of the 7th chamber with the main body lying between the 4th and 5th levels, and forming the 11th and 12th chambers. The main ore body is still making up above the 4th, and looking well for continuing, but whether towards the Tip Top or the old Richmond seems doubtful.

Eberhardt and Aurora, 4 to 4 1/2; a large number of transactions have taken place during the day; a telegram from Capt. Drake announces that they are continuing the drift this month before resuming work in the tunnel. The length of the drift is 755 ft.; indications fair. Colorado United, 1 1/2 to 1 3/4; the March account shows a net profit of \$1374. During the three months the liabilities have been reduced by \$15,950.

In Hydraulic or Gold Washing Companies' shares the market is reported to show a decided improvement. Blue Tent, 2 to 2 1/2; the annual meeting was held on Tuesday, and a full report will be found in another column. The reports from the property continue good, and a telegram received during the week announces a further partial clean-up, with a return of \$10,000. Fall Creek Water Company, 2 to 2 1/2; the annual meeting of shareholders, of which a full report will be found in another column, was held on Tuesday, when a dividend was declared at the rate of 5 per cent. per annum from profits earned in the year ending Dec. 31, 1878. Placerville, 2 1/2 to 2 3/4; a telegram received during the week announces the result of a further milling of quartz, the value obtained being \$14 per ton. This result is considered exceedingly good. Milling operations will be continued as soon as the necessary repairs are made to the foundation. The mill in use is one that the company have hired, and in consequence of standing idle for some time, the foundation has apparently got out of order. The quartz mill was raised from the 400 ft. level. The underground operations are being pushed on in a satisfactory manner.

Hultafall, 2 to 2 1/2; dressing operations have been commenced, and also full work at the mines after a very protracted winter. The inland navigation is not opened yet, being quite a month later than usual. Early shipments are expected.

In Lead Mine Shares the amount of business doing has been very limited, but as some of the mines have received slightly better prices for their ores it is considered that an immediate improvement may be looked for. Van, 17 to 19; there is no particular change at the mine since the full report published last week. Gwernynydd, 4 to 4 1/2; the works are being prosecuted rapidly, and with every prospect of success.

Mineral Corporation, 10 to 11; the manager's report this week is very meagre. The lode in the No. 3 adit end at Hafna continues to be worth 1 1/2 tons of blende and 15 oits. of lead per fathom. Surface operations are going on satisfactorily as usual. There is nothing special to report with regard to Bryn Canadon and Great D'eresby. The erection and setting to work of the rock-drilling machinery is looked forward to with much interest.

Frongoch, 2 1/2 to 2 3/4; the 120 tons of lead ore sold on Thursday realised 87.3s. 6d. per ton. The accounts from the mine continue very cheering. Grogwion, 2 1/2 to 3; 100 tons of lead have been sampled for sale on Friday next. The mine is still improving, and the value of the lode in the 68 has increased to 3 tons of lead per fathom. Caron, 1 1/2 to 2 1/4. Good progress is making in all departments. Wye Valley, 1 1/2 to 1 3/4; the mine is looking well, and improving. West Wye Valley, 1 1/2 to 1 3/4; a parcel of lead will be sampled next week. St. Harmon, 1 1/2 to 2 1/4; South Cwmynith, 1 to 2; Mawston, 1 1/2 to 2; Hartington Moor, 1 1/2 to 2; Croeswood, 1 1/2 to 2 (cum all).

Pateley Bridge, 2 1/2 to 3; the 30 east, on Rake vein, is looking very favourable, and is apparently opening into another fine body of ore. The 30 north-west, on Fielding's vein, is also improving, and is now worth 1 ton of lead per fathom. Other parts unchanged. The erection of the machinery is being pushed on with all possible speed. West Pateley, 2 to 2 1/4; a further improvement has taken place in the bottom levels.

Subjoined are the closing quotations:—
Asheton, 3/4 to 1; Carn Brea, 2 1/4 to 3; Devon Consols, 1 1/2 to 2; Dolcoath, 2 1/2 to 2 3/4; East Canada, 5s. to 10s.; East Van, 1 1/2 to 2; Great Laxey, 15 to 16; Gwernynydd, 4 to 4 1/2; Hingston Down, 3/4 to 1; Leadhills, 2 to 2 1/2; Marke Valley, 10s. to 12s. 6d.; Penarth, 1s. to 3s.; Roman Gravel, 8 1/2 to 9; Tankerville, 3 1/2 to 4; Tincroft, 9 to 9 1/2; Tye-y-Fron, 3/4 to 1 1/2; Van, 16 to 18; West Asheton, 3/4 to 1; West Bassett, 4 1/2 to 5; West Chiverton, 2 1/2 to 3; West Pateley, 2 to 2 1/4; Wheal Grenville, 3 1/2 to 4 1/2; Almada and Tinto, 2 to 3; Blue Tent, 2 to 2 1/2; Canada Gold, 2 to 2 1/4; Cape Copper, 2 1/2 to 2 3/4; Chontales, 3/4 to 1; Colorado United, 1 1/2 to 1 3/4; Don Pedro, 10s. to 15s.; Eberhardt and Aurora, 4 to 4 1/2; Frontino and Bolivia, 2 1/2 to 2 3/4; Hultafall, 2 to 2 1/2; Nouveau Monde, 3/4 to 1; Pestarena, 3/4 to 1; Placerville, 2 1/2 to 2 3/4; Plumas Eureka, 2 1/2 to 3; Fort Phillip, 3/4 to 1; Richmond Consolidated, 7 1/2 to 8 1/2; St. John del Rey, 270 to 275; Sierra Buttes, 2 1/2 to 2 3/4; United Mexican, 3 1/2 to 4.

* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: The Commission of Enquiry on Colliery Accidents—No. II.; Colliery Management; Teale's Safety-Lamps (J. D. Shakespear); The London Coal Supply (W. J. Thompson); New Zealand and Kananga; Tarnish Copper Ore Company (H. A. Haselden); Should our Mining Population become Shareholders in Mines (W. Salmon); Is it Right to Pay Purchase-Money for Mines? (W. Salmon, H. D. Hoskold); Cornish Mining, and its Unwrought Ground (O. Bowden); Mining Vicissitudes and Despondency v. Enterprise (R. Tredinnick)—Foreign Mining and Metallurgy—Mining in South Australia—The Metallurgical Treatment of Oxidizable Minerals—Combustion without Smoke—Meetings of Public Companies: National Provincial Bank of England—Blue Tent Consolidated Hydraulic Gold Mines of California—Fall Creek Lakes Water; United Mexican; Santa Barbara—South Tolara—Dolcoath—North Busy United. The Scotch Mining Share Market—Weekly Report and List of Prices. Successful Floating of the Consolidated Andador Volcano Hydraulic Gravel Mines on the French Market, Mining in Utah, Registration of New Companies, The Coal Trade, The Wells' Balance Engine, Punching and Shearing Metals, Machines for Separating Ores, Smelting and other Furnaces, Indestructible Telegraph Cable, The Students' Test-Book of Electricity, American Almanac, Dictionary of London, Patent Matters, &c.

WEST HOLWAY.—Shares in this company are being rapidly absorbed privately; a fine course of ore is available for working, and the mine, which has been in private hands, is likely to be soon in our Dividend List.

PEN-YR-ORSEDD.—Under most favourable circumstances this company has been registered. The property adjoins Rhosmor, and will be the first to participate in the advantages of the driving by the Halkyn Drainage Company. It is expected that the water will be tapped now quickly, when the discoveries made years since can be explored. The prospects are stated to be splendid, and the shares are in demand.

WEST PATELEY (Lead).—Cranston's rock-boring drills will be at work in a few days. Cross-cuts will be immediately commenced to intersect the series of rich lodes known to have been highly productive when wrought near surface. Referring to the bottom of the mine, the manager writes that "driving has been resumed at the bottom of the shaft, 67 fms. from surface, and that the size and value of the vein will be reported upon next week." From the 56 fm. level to the 67 lode has continued to improve, and a very important section of ore ground will be opened out both east and west at this point. The vein in the 56 north-west has further improved during the past few days; it is now 4 ft. wide, and worth 20 cwt. per fathom, the best ore being in the sole of the level, which is encouraging for the 67 fm. level. Other parts of the mine opening out satisfactorily. Dressing and smelting are proceeding regularly.

CLOGAU (WELSH) GOLD.—From the monthly report, which appears in another column, it will be seen that the gold yielded is valued at 300l., at a cost of 100l., equal to a net profit of (say) 200l. The indications point to a further great improvement.

The Master of the Rolls has appointed Mr. James John Deller (White, Deller, Carr, and Benwell, King-street, Chancery) official liquidator of the Sceptre and Licensed Victuallers and General Fire and Plate-glass Insurance Company (Limited).

CAMBRIAN GRANITE COMPANY (LIMITED).

Incorporated under the Companies Acts, 1862 and 1867.

Capital £15,000.

It has been determined to increase the Capital of this Company to £20,000 by the ISSUE of FIVE HUNDRED DEBENTURES of £10 each, bearing interest at 5 per cent. per annum from issue, and redeemable at par at the expiration of seven years, the holders of such debentures having the option at any time during the seven years of exchanging such debentures, or any of them, for ordinary stock of the company.

The debentures are a first charge on the whole of the company's valuable granite quarry, upwards of 200 acres in extent, situated on the west coast of Carnarvonshire, near Ffesty, together with the new and efficient working Plant, Tramway, and Pier; also six acres of Freehold Building Land in the vicinity of the Quarry, and the ten excellent cottages recently erected by the company thereon at a cost exceeding £1500.

The Company possesses a Stone unsurpassed by any for paving and other purposes, and has advantageous contracts on hand.

180 out of the 500 debentures proposed to be issued have been spoken by the present shareholders in the company, and the remainder are offered to public subscription, and an early application will be necessary.

The amount of the Debentures will be made payable to suit the convenience of applicants, in one payment, or by instalments at fixed intervals.

Further information may be obtained on application to Messrs. J. B. HUGHES and REAY, the Company's Auditors, 4, Clayton-square, Liverpool; or to W. WATSON RUTHERFORD, the Secretary.

Or to ROBERT NEWTON, the Company's Agent, 6, Eberle-street, Liverpool.

Office: Castle-square, Carnarvon.

NEW MINERAL OIL SOAP.

Mineral oils being neutral in their character have not hitherto been combined with alkali to form soap, but an invention of Messrs. BARRIEUX and ROSIER, of Marseilles, France, relates to a process for saponifying such oils producing benzene soap therefrom, and it applies not only to those which are found native, such as petroleum, but also to those that are obtained from coal, schist, asphalt, and other minerals. In order to render such acids capable of saponification they are according to this invention first acidified by the addition of concrete fatty matter, either animal or vegetable, and the mixture is then saponified in the usual way by the addition of alkaline lye. The soaps thus produced may be varied in hardness and solidity according to the nature of the fatty matters and lyes employed, but in all cases they are powerfully detergent and disinfectant, and baths formed by them do not putrefy even after use. Such being the general nature of the new or improved process, the manner in which it can be practically carried into effect may be best understood by a particular example.

Assuming the oil to be treated to be the rectified oil of petroleum and the concrete fatty matter stearic acid, the latter is melted in a water bath and poured into the petroleum, which is at ordinary temperature, the stearic acid being added to the petroleum in the proportion of about 15 parts of the former to 100 parts of the latter by weight. After thorough mixture by stirring for a short time the compound can be saponified in the usual way. It is, however, of advantage to combine it before saponification with animal or vegetable fatty matter, a good proportion for such combination being 2 of the acidified petroleum to 3 of the fatty matter. Either soda or potassa may be employed to saponify the compound, producing a benzene soap, which may be made hard or soft according to the alkali and the proportions adopted in the saponification.

CASTING METALS.

Hollow or ring-shaped ingots of steel or other metal are ordinarily made by casting the metal in a mould, in the centre of which is placed a core of some suitable material, by the removal of which after the ingot or casting has become solid the required central hole is left. This plan of casting the metal round a core presents several inconveniences, one of the chief of which is that the casting if it is thin is often less sound or less solid than a block of metal would be of the same bulk, but cast without the central hole; moreover special precautions must in most cases be taken to avoid the risk of the metal cracking or tearing as it contracts round the core in the act of cooling.

With a view to overcome these inconveniences Messrs. TAYLOR and WAILES, of Panteg, propose instead of making such ring-shaped ingots or castings in a mould in the centre of which a core is fixed, by the removal of which after the metal has become solid the required hole through the ingot or casting is left as above mentioned, they pour the metal into a mould, which is kept in rotation by preference round a vertical axis by mechanical means at such a high velocity that the liquid metal as soon as it is poured into the mould is driven by the centrifugal force caused by the rotation of the mould against the inner circumference of the latter, so that as it cools the metal becomes solidified in the form of a ring-shaped or hollow ingot or casting, the outer surface of which has the form of the mould, and the inner surface is more or less conical (or if the mould be rotated at a high velocity the casting will be nearly cylindrical), forming, in fact, a ring-shaped section of the paraboloid of revolution which is the form taken by the free surface of a mass of heavy liquid in rapid rotation round a vertical axis. The axis of rotation instead of being vertical may if found more convenient be inclined or even horizontal, provided that the velocity of rotation of the mould be sufficient to throw the liquid metal (when poured into it) into the required annular form.

EXTRACTING PHOSPHORUS FROM IRON AND STEEL.

According to some experiments made by Messrs. SCHULZE-BERGE and BARNSTORF, of Oberhausen, Westphalia, for the purpose of de-phosphorising iron the use of chlorides and fluorides of the alkaline earths is most successful. They prepared anhydrous chloride of calcium in the state of powder, and dissolved it with 15 grammes of borings of phosphorus foundry pig-iron in muriatic acid, which process left nearly all the phosphorus iron undissolved. Then they purified the residue by decantation, and dried it in a temperature of 100°C. A sample weighing 1-10th of a gramme of the phosphorus iron thus treated was mixed with excess of chloride of calcium, and melted (protected from the influence of the air) in a crucible; protochloride of iron escaped, leaving oxide of iron in the crucible. In dissolving the cooled molten mass phosphoretted hydrogen was developed.

In all the experiments sulphur and silicon were separated as well as phosphorus. In order to make use of this action of chloride of calcium, and of the other above-mentioned chlorides and fluorides of the alkaline earths, either alone or mixed together for the de-phosphorization, they must be driven in a fluid condition in finely divided streams slowly, continuously, and regularly through the fluid metal (pig iron, steel, &c.), air being rigidly, or as far as possible, excluded by suitable precautionary measures. The process will progress the more favourably the less the material of the vessel is allowed to act on the purifying medium employed, as also on the new compounds formed during the operation. For this reason the presence of slag is particularly injurious. As the access of air, gases of combustion, slag, &c., are injurious to the process, it is well, for example, to pour the fluid metal into a fore hearth similar to that of "Kriger's" cupola, or into a receptacle similar to the converter used in the "Bessemer" process, taking care to warm the sides of such vessel beforehand, and that it is properly protected from being cooled. The addition of the chloride of calcium may take place through adjustable valves in the bottom.

In order to prevent the solidification of the chloride of calcium, the conducting tubes, which are to be as short as possible, must be kept warmed to a sufficient degree. Radiation of heat from the surface of the metal may be prevented by a cover, and the air above the fluid metal may be driven out and entirely excluded by passing in gas free from oxygen. The chloride of calcium, driven by compressed air, or by compressed gases free from oxygen, flows off along with the phosphide of calcium which is formed through an over-flow aperture placed a little distance above the surface of iron. The chloride of calcium which has not been decomposed either by phosphorus, sulphur, or silicon, absorbs moisture, and thus separates

itself from the remaining phosphate of lime, &c., as they had an opportunity of proving during the above experiments. The novelty of the invention, therefore, consists in the regular and continuous forcing of fluid chlorides of the alkaline earths in fine subdivision through fluid iron, and in the complete, or as far as possible complete, exclusion of atmospheric air during the process. It is apparent that in carrying out the process the most varied constructions of hearths and furnaces are possible.

NEW FIRE-DAMP INDICATOR.—An improved apparatus for detecting the presence of fire-damp, and indicating at any time the percentage of gas existing in the atmosphere of a mine has been invented by Mr. A. H. MAURICE, of Cold Norton, near Stone, Staffordshire. The apparatus consists of an air vessel of any convenient size or shape made of wood or metal, with a lid or cap to screw or otherwise fasten on, so that when closed the vessel shall be airtight. Attached to this vessel is a gauge so arranged that any rarefaction of the air or formation of partial vacuum in the interior of the vessel is indicated by it. The gauge may be a water or mercury gauge, an ordinary pressure gauge, or an aneroid or mercurial barometer, and it is intended to show the difference between the pressure or density of the atmosphere on the outside of the vessel and that on the inside of the vessel after the action of the apparatus for the detection of gas has been completed. The other portion of the apparatus consists of a mass of spongy platinum or of finely divided metallic platinum (or any other form of platinum or metal which will answer the same purpose), which is placed in an airtight box or cap, having been first thoroughly dried by ignition or by being kept in a desiccator. This box or cap containing the platinum is so arranged that on being placed in the air vessel, and the latter closed, it may be opened from the outside of the air vessel by means of a rod, lever, screw, or other contrivance (so that the platinum becomes exposed to the atmosphere inside the vessel), and may be closed again in like manner when desired. This is done in such a way that the air vessel continues perfectly airtight during the opening and closing of the platinum box. The action of the instrument or apparatus is as follows: The air vessel being taken into the mine with the cap or lid off becomes filled with the atmosphere which it is intended to test, the platinum box is placed in it, and it is then closed airtight. The gauge or aneroid is now read off, the platinum box is opened so as to expose the platinum to the interior atmosphere, and at the end of five minutes is closed again. The gauge or aneroid is now read a second time. The platinum on being uncovered immediately acts upon any fire-damp which may be mixed with the air, inducing slow combustion, the product being carbonic acid gas and water vapour, and the consequence being a rarefaction or reduction in the volume of the atmosphere in the interior of the air vessel, varying exactly as the percentage of fire-damp present. The gauge or aneroid shows the amount of rarefaction or reduction of bulk in the air vessel, and also, by means of a table made for the purpose, the exact percentage of fire damp in the air.

CAPPER PASS AND SON, BRISTOL

PURCHASERS OF

LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

GEO. G. BLACKWELL,

5, CHAPEL STREET, LIVERPOOL.

PURCHASERS OF

MANGANESE, ARSENIC FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE AND SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, COBRES AND UMERS, CHINA CLAY, LEAD ORE FOR POTTERS TALC, PHOSPHATE OF LIME, &c.

AUSTRALIAN TIN—PRIZE MEDAL, 1877.

THE UNDERSIGNED IS PREPARED TO EXECUTE ORDERS for the CELEBRATED

"KANGAROO" BRAND.

S. L. BENSUSAN.

Kangaroo Tin Works, Sydney, December, 1878.

HENRY WIGGIN AND CO.

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NICKEL AND COBALT REFINERS BIRMINGHAM.

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ARE BUYERS OF

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N.B.—Sole Manufacturers of the Palm Anti-Friction Grease and Lubricating Oils for Collieries, Mines, &c.; also the Asphaltic Varnish Paint for coating outdoor Ironwork and Machinery.

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MINING AGENTS AND SURVEYORS,

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Mines inspected and reported on at home and abroad.

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MINING ENGINEER,

Will SUPERINTEND or EXAMINE and REPORT on MINES on the PACIFIC COAST. Having had 14 years' experience in Gold and Silver Mining in Mexico, California, and Nevada. Government Mining Engineer for the Province of British Columbia. Any communications may be addressed Room 49, Nevada Block, San Francisco, California.

WANTED, a GOOD SECONDHAND 10 or 12-H.P. SEMI-PORTABLE ENGINE and BOILER. No gearing, beyond fly-wheel required. One of Robey's Mining Engines preferred. Also, a GOOD SECONDHAND 2-H.P. VERTICAL ENGINE and BOILER. Apply to TUDHUNTER and ELLIOT, Ironmongers, Douglas, Isle of Man.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
May 3	Tan-y-arall	15	£ 8 0 0	Panther Lead Co.
5	Pandora	24	8 7 0	Sheldon, Bush, and Co.
6	Foxdale	100	13 8 0	ditto
8	Frongoch	120	8 3 6	Walker, Parker, & Co.
—Talargoch:—				
	Maes-y-wyddu	70	10 2 6	ditto
	Coetia Llys	30	10 2 6	ditto
	North Hendre	50	9 0 6	ditto
	ditto	50	9 1 6	Adam Eytton.
	ditto (round ore)	10	11 10 0	Quirk, Barton, and Co.
	Rhydian	25	9 6 6	Adam Eytton.
	Deep Level	17	9 6 6	Walker, Parker, & Co.
	Prince Patrick	50	9 6 6	ditto

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
May 2	Miners	60	£ 3 4 0	Vivian and Sons.
	ditto	60	3 3 0	Richardson and Co.
	ditto	35	3 3 0	ditto
	ditto	45	3 4 0	Vivian and Sons.
	ditto	32	3 4 6	Villiers Spelter Co.
	ditto	28	3 2 6	—
[No sales of Lead Ore this month.]				
5	Pandora	27	1 4 0	Vivian and Sons.
6	Talargoch	220	3 8 6	Crown Zinc Co.
8	East Roman Gravel	20	2 17 0	Crown and Sons.

Notices to Correspondents.

Much inconvenience having arisen in consequence of several of the Numbers being sent out by the printer, we recommend that the Journal should be sent by post, and that it should be sent by the most direct route.

MINING JOURNAL.—Bound volumes wanted of the Journal for the years 1870, 1871, 1872, and 1876. Any subscriber having them to dispose of will oblige by stating price. Address, "R. C. C.," Mining Journal Office, 25, Fleet-street.

CHRE.—If "Enquirer" will correspond with "J. B." Post Office, Lanner, Red-ruth, Cornwall, he will give him every information required concerning chre. **ROYAL SCHOOL OF MINES LECTURES.**—"D. L. de Q." (Zaragoza).—The lectures delivered by Prof. Warrington Smyth have not, as "D. L. de Q." supposes, been published in a separate volume, and at present the greater part of the Numbers which contained them are out of print.

RECEIVED.—"T. B." (Salt Lake City).—"W. G." (Miners).—"C. S. R." (Denver, Col.).—"G. R." (Whitby).—"L. C. H."—"J. C."—"T. F. H." (Sunderland).—"Cornishman" (Tin Dressing).—"Shareholder" (South Crofty).—"Constant Reader" (Bristol).—"Cantab."—"We have no space to devote to details; they are not of sufficient general interest to our readers."—"Cornubensis."—"G. S."—"J. B. A." (Cambrian Mining Company).—"J. W."—"J. B." (Paris).

IRON AND STEEL INSTITUTE.—A pressure on our space has compelled us to postpone the publication of our report of the proceedings at the meetings held during this week.

RIO TINTO COMPANY.—Our report of the meeting of shareholders, held yesterday, is also deferred until next week.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, MAY 10, 1879.

THE VALUE OF IRON ORES.

In connection with the manufacture of steel direct from the argillaceous and other poor ores of Cleveland and other parts of the kingdom a most important question arises—What will be the effect on the British and foreign hematites? This question was recently suggested to us by a gentleman connected with mining in the Cleveland district, and it is one that must force itself forward before long. It is evident that steel can be made at a much less cost by the new process from ordinary ores than from the more expensive ones raised in Lancashire, Cumberland, &c., although containing a much less percentage of metallic iron than the latter. Assuming that the average of the Cleveland stone will yield about 33 per cent. of iron it will take about 3 tons to produce 1 ton of pig. Now, according to the latest returns, we find that the value of the ore alluded to is only about 3s. per ton—so that the actual cost for the raw material required for converting into 1 ton of pig would be only 9s. On the other hand, the hematites of North Lancashire, Cumberland, the Forest of Dean, &c., are valued at close upon 15s. a ton, and if they yield so high a return as 70 per cent. it would at the present price require stone of the value of 19s. 6d. to turn out a ton of pig-iron, leaving a difference of 10s. 6d. in favour of the iron made in Cleveland. The latter, too, has the great advantage of being close to an extensive coal field, so has but little to pay for the conveyance of fuel to the furnaces. This, as we have said before, is a serious matter for the consideration of both the lessors and lessees of hematites—for, although up to the present time they have enjoyed a great advantage owing to the superior quality of the stone and its adaptability for converting into steel, that advantage is not likely to last much longer. The demand for the pig must fall off, for the new process will be adopted in nearly all our iron-making districts, whilst hematite pig will have to come down to something like the price of that made from the common ores, seeing that steel can be made from both. The inferior stone, too, can be raised cheaper than the best, for in some places it is found quite close to the surface, whilst in North Lancashire and Cumberland the hematites occur as veins in Lower Silurian, but are both larger and pure in the Mountain Limestone, and these latter deposits, we may say, are found at Furness, Whitehaven, and Millom.

At the present time the production of ironstone in the kingdom is at the rate of 16,000,000 tons a year, and of this Cleveland may be credited with 6,200,000 tons, whilst the hematites may be put down at 2,500,000 tons. But in this, the commencement of the Age of Steel, it may well be asked in what district will our ironmasters go on making pig iron when they can make steel direct from any description of ore? In very few indeed, one would think for all must keep moving with the march of invention, and the low price at which steel can be made must largely increase the consumption of it, and lead to a corresponding decline in the demand for ordinary iron. That it is intended to adopt the new process in nearly all our iron districts we have it on the best authority. In Lincolnshire, where there are now 21 furnaces, we have been informed that the direct system will be carried out. In the northern part of that county there is practically an inexhaustible field of ironstone, yielding in some instances more than 35 per cent. of metallic iron, whilst, the stone being close to the surface, the price is only about 3s. per ton delivered at the furnaces. The locality is also at a moderate distance from the South Yorkshire coal field, where the fuel is even cheaper than in Durham. Here, again, we cannot see how the hematite districts can compete with such a field as North Lincolnshire, being at no great distance from a shipping port, and having direct railway communication with all parts of the kingdom. If we proceed southward we find extensive areas of stone, low in price and easily raised, the greater proportion of which will eventually be turned into steel. At Dronfield, in Derbyshire, there is one of the finest Bessemer works in the kingdom, but hitherto all the pig required has had to be imported from a distance; but Messrs. WILSON and CAMMELL are not the men to continue dependent on others when they can help themselves at a much lower rate. The same remarks as to ore apply with equal force to Northamptonshire, where the stone is close to the surface and of good thickness. At Easton Neston, in the southern part of that county, there are two beds yielding about 40 per cent. of iron. The upper bed is 12 ft. in thickness, and after going through a parting of some 10 ft. or 12 ft. of an ochreous substance there is the lower bed, 20 ft. thick. The sands in which the stones are found are about 80 ft. thick, and are succeeded by a number of the inferior oolite. There are several furnaces in different parts of the county, and at Towcester are the works established by Dr. SIEMENS for making iron and steel by direct process, and where it was intended to establish rolling mills; but it was discovered that the ore, although capable of producing iron of good quality was too poor and irregular in the quality to yield fair commercial results unless it was mixed with an equal weight of Spanish or other hematite. But now there is no question but what, like other districts, those in Northamptonshire, where the furnaces are situated, will become makers of steel by the direct process now being carried out in the North of England, and which is destined to become the great steel-making centre in the kingdom, as it has hitherto been of the manufacture of pig-iron.

Having said so much of our own ordinary ores, and how they are likely to affect the hematites, we must glance at the position of those who have embarked in foreign ironstone mines. A large amount of English capital has been spent on mines in Spain, from which we at present draw a heavy tonnage of hematite; but we cannot see how it can now stand the slightest chance of competing with the Cleveland and other common stone so abundant in different parts of England, and that can now be readily converted into steel. So far this year we have imported of foreign iron ore at the rate of 1,120,000 tons a year, and the price as near as possible has been 20s. a ton. It will, therefore, be evident that when the new process is in operation it will not pay to import foreign stone. As a matter of course, when steel can be made so very cheap in comparison to what it is at the present time, there will be a considerable fall in the value of Bessemer rails. In all probability we shall see them quoted at 37 10s. per ton delivered; but this will not be capable of

being effected where the ores are from 15s. to 20s. a ton, but from those that do not cost more than 3s. or 4s. As regards Spain it cannot be expected that it will pay to bring the ores from there to England, and it will be for those who have laid out their money to see whether or not it is practicable to smelt the ores on the spot, and in making rails sell for delivery on the Continent. Be that as it may, it is plain that the iron trade by the most recent discovery is about to be revolutionised, and that before long we shall see great and important changes in connection with it. Amongst these will be that relating to hematite ores that have so long been in request for the making of steel, but which can now be dispensed with for that purpose in favour of ores that can be purchased at one-fifth of the price.

THE PROPOSED STOPPAGE OF ALL OUR COLLIERIES.

A conference of delegates from all our coal mining districts is to be held at Barnsley next week, for the purpose of considering the advisability of setting down the whole of the collieries in the kingdom, with a view to preventing a reduction of wages. A more preposterous proposition we certainly never heard of, and can scarcely consider it as coming from an ordinary sane man. But it shows what singular views some Unionists have, and what they are capable of doing in their endeavours to obtain a certain object. The idea of between 400,000 and 500,000 men and boys all being idle at the same time, and nearly the whole trade of the country standing in consequence, is certainly a project that none can seriously entertain, and one is surprised that men from all parts of the country are about to meet for the purpose of discussing it. Were it possible, the consequence would certainly be serious, for nearly all trades are dependent upon coal in one shape or another. But to stop the trade of the country would be an attempt on a par with the efforts of Mrs. PARTINGTON to keep the tide back with a mop. The sage gentleman who first mooted the stoppage of all the mines it appears belongs to Wakefield, where we believe there is a county asylum, for which he is evidently more fitted for an inmate than to be allowed to be at large. We are not told how it is proposed to support all the men who would strike work, for they could not expect other trades to do anything for them, for they would be standing as well, so starvation or something closely akin to it would become general. Thousands of colliers could not remain out of work for a fortnight if left to their own resources, and as the funds of all the associations put together would not last for a week, the men would be in a sorry plight indeed. The leaders, of course, who never work, would be all right, but it would be very different with the rank and file. But such a policy, if possible, shows how selfish some of the Unionist leaders really are. They would not care to see tens of thousands of men, women, and children, in our manufacturing districts in particular, idle and starving so long as they thought there would be any advantage to themselves. The miners have frequently appealed to the trades of the country for support in case of disputes, and have been well supported, and in return for such kindness they would aid in forcing their former benefactors into the depths of misery. Fortunately, the proposal is not only impossible but absurd, but it shows, as we have before stated, what some men are capable of doing for attaining their own heartless and selfish ends.

ENGLISH AND AMERICAN STEEL RAILS.

The value of the English Bessemer rails over those made in America has just been most significantly recognised by the well-known American railway millionaire, Mr. VANDERBILT, who has forwarded to this country an order for several thousand tons. Of late years we may say great attention has been paid by the analytical chemist and practical men to the production of a quality of steel which could not be excelled, if equalled; and now we see the results. Dr. PERCY in his invaluable work, and in his analytical investigations, had done good service; whilst Sir W. FAIRBAIRN by experiments also made known the value of the steel made at the Barrow works in his report on the transverse, tensile, and compressive resistance of certain bars of steel made at that place. Obtaining the proper quantities of carbon, manganese, silicon, &c., for certain purposes a quality of steel can be obtained (adapted for rails in particular) to bear a great strain, and last a long time, being of great strength and hardness. Chemical science and the labours of such experimentalists as Sir W. FAIRBAIRN, Mr. BARLOW, Mr. KIRKALDY, Mr. LOWTHIAN BELL, and others, have done much to place us in the position of being first in the art of producing iron and steel, and so maintaining the foremost place in the supply of the markets of the world. Our inventors, too, such as BESSEMER and SIEMENS, have taught the foreign manufacturers of iron and steel nearly all they know about those metals, although we are frequently told of the great progress which is being made in America in particular in connection with the making of steel, and the probability that that market would be altogether closed against us for Bessemer rails. This is disproved by the action of such an astute judge as Mr. VANDERBILT, who we are told did not dispatch his order to this country for rails until he had well considered the cost, and after having some of those made in England subjected to the most searching chemical and other tests along with those made in America, and the results were so much in favour of the former that an order was given for 10,000 tons at a cost on board of 54s. a ton. The duty to be paid on rails entering an American port it appears is about 54s. 12s. a ton, or more than the prime cost, so that when they are delivered in New York the total cost will be \$53 (or 104 12s.) per ton.

It is evident that were it not for the enormous duty American rail makers would stand no chance with us even in their own markets, for we find that the ordinary charge is from \$44 to \$47 a ton. But our manufacturers go much further with respect to guarantees than their competitors on the other side of the Atlantic. Those manufacturers in England who have accepted the new contract guarantee that the rails will last twelve years, and all that do not come up to that standard are to be replaced free of cost. On the other hand, all the American manufacturers applied declined to give such a guarantee, five years being the longest they would give. And this it appears is the highest period guaranteed for American rails on lines where the traffic is heavy. In England steel rails have been placed on several of our leading lines for seven or eight years, and appear almost as good as ever, a uniform and regular wear only being discernible, which shows the perfect homogeneity of the metal. On some of the American lines English rails have been in use for several years without showing any signs of wear, whilst American ones laid about the same time have had to be replaced by others. It is, then, from a truly economical point of view that Mr. VANDERBILT has determined to have English Bessemer rails for that part of the New York Central Railroad where the traffic is heavy, and while the cost will be nearly 25 per cent. more than he would have to pay for the American rails, there will have to be set against that twice the amount of wear, besides what it would cost for relaying. One of the officials of the railway states that the purchase made by Mr. VANDERBILT of English Bessemer rails was purely for reasons of economy, and after considering carefully all the elements involved in the matter. "A road with the enormous traffic of the New York Central cannot afford to be deprived of its tracts every few years for the laying of new rails, and where the heaviest wear is we shall lay the English steel." This we consider to be as high a compliment as it is possible to pay to English made rails, and we consider that the President of the New York Central road was only doing his duty towards his shareholders in making his purchases in the best and cheapest markets. It is true that he has raised the ire of some of his countrymen for having acted as he has done, and it has been said that by going to England to rails he wanted to make capital to use at Washington in fighting against the present tariff, a view which we are told is simply absurd, and never entered his mind.

The tariff is certainly a heavy impost; all persons must be taxed for the benefit of the few, and we should be only too glad to find that Mr. VANDERBILT or any other person could succeed in having it removed. If such were done it would have the effect of stimulating American manufacturers to make greater exertions in com-

peting with those in England, whilst the country generally would be benefited. America has immense supplies of ironstone and coal, and those engaged in the production of both iron and steel should, to say the least, be able to meet us in those metals in their own markets, seeing the price that has to be paid for reaching an English port and then crossing the Atlantic. But such at present they are not able to do, so that with a tax more than the actual value of the rails when put on board a vessel the English Bessemer rails are preferred to those made in America, more particularly where the traffic is the heaviest.

THE AMERICAN IRON TRADE.

The position of the American iron trade at the commencement of April, 1879, still presented, it must be confessed, a good deal of room for further improvement. Thus the number of blast furnaces in the United States at the date specified was as annexed:—Charcoal, 264; anthracite, 230; and bituminous or coke, 219; making a total of 713. Of these the following were in blast:—Charcoal, 68; anthracite, 89; and bituminous or coke, 84; making a total of 241, or scarcely more than one-third of the whole. As usual, Pennsylvania sustains the lion's share of the pig-iron production of the United States, the number of Pennsylvania blast furnaces in operation at the commencement of April, 1879, being as annexed:—Charcoal, 16; anthracite, 68; and bituminous or coke, 34. It follows that Pennsylvania contributed no fewer than 118 furnaces to the total of 241 in operation last month. Ohio is also a considerable iron making state, having 10 charcoal and 24 bituminous or coke furnaces in working in April, 1879. Pennsylvania and Ohio thus comprised between them last month 152 of the 241 active blast furnaces of the United States, leaving only 89 furnaces to be contributed by other States. In this latter total the State of New York figured for 20 furnaces; Tennessee for 6; Missouri for 4; Michigan for 9; Illinois for 4; Virginia for 5, &c.

It is curious to note that the number of furnaces in blast at the commencement of April, 1879, presented very little variation as compared with the corresponding totals at the commencement of April, 1878, and April, 1877. Thus in April, 1877, the number of active blast furnaces was 238; in April, 1878, 252; and in April, 1879, 241. The number of furnaces out of blast last month was 472, or 65½ per cent. of the whole total. The corresponding proportion a year since was 64½ per cent., so matters instead of improving have rather changed for the worse during the past twelve months. Such figures as these show unmistakably that the American iron trade has been greatly overdone; in other words, that a very large amount of capital embarked in American metallurgical industry remains wholly unproductive. American ironmasters have succeeded in inducing the United States Congress to impose duties which it was fondly hoped would have the effect of driving out foreign iron—and especially English iron—from the markets of the Republic. We will not pretend for a moment that this Protectionist policy has not had, to some extent, the desired effect. It has driven English rails pretty well away from American ports; but it has been at the same time a comparative failure, as it has not given a sufficient amount of strength and vigour to American iron making to ensure full employment to the vast productive resources now at the disposal of American metallurgical industry.

The productive capacity of the blast-furnaces in operation in the United States at the commencement of April, 1879, was estimated at 51,473 tons per week, or 2,676,596 tons per annum. These figures certainly represent an important production, but the productive capacity of the furnaces out of blast is much more considerable, amounting as it does to 68,945 tons per week, or 3,485,140 tons per annum. To state the matter in another form and in other words—the available productive capacity of the blast-furnaces of the United States is 6,161,736 tons per annum, while the actual production last month was only at the rate of 2,676,596 tons per annum. We can but repeat in the presence of such statistics as these that the legislation of Congress has failed to remove the awkward fact that the Americans have invested a far larger amount of capital in the production of iron than can be rendered profitable. Two years have glided away, and have failed to secure much change for the better, and it certainly does appear to us advisable that American capitalists should abstain from investing a larger proportion of their resources in appliances for the production of pig-iron.

ART CASTINGS IN STEEL.—At the meeting of the Iron and Steel Institute, held at the rooms of the Civil and Mechanical Engineers, Great George-street, Westminster, various art castings in steel were exhibited by Hadfield's Steel Castings Company, Hecla Foundry, of Sheffield, whose various art reproductions in steel excited great interest amongst metallurgists, it having previously been deemed impracticable to cast such articles in steel. These art reproductions illustrate some of the latest triumphs in the art of steel casting. One of these antique pictures in steel is a Repousse Shield by Benvenuto Cellini, the famous artist in metals of the sixteenth century, and it is supposed to represent the Siege of Troy. Four other pictures represent the Elements—Earth, Air, Fire, and Water. The Bas Reliefs are copies from the house of Henry the Fourth of Paris. Another represents the Seasons—Spring, Summer, Autumn, and Winter. Another subject is children at play, and another an Eastern subject. These pictures are after the style of the French bronzes shown at the late Paris Exhibition, and were greatly admired by experienced and practical steel-makers who know how difficult it is to obtain sound castings in steel but this firm are noted for their specialities in steel castings.

THE ALBERT MEDAL.—The Council of the Society of Arts attended on Tuesday at Marlborough House, when His Royal Highness the Prince of Wales, as President of the Society, presented to Sir Wm. George Armstrong, C.B., D.C.L., F.R.S., the Albert Medal awarded to him "because of his distinction as an engineer and as a scientific man, and because of the development of the transmission of power hydraulically, due to his constant efforts, extending over many years, the manufactures of this country have been greatly aided, and mechanical power beneficially substituted for most laborious and injurious manual labour. The members of the Council present were—Lord Alfred Chubbuck (chairman), the Earl of Northbrook, K.C.S.I., Sir John Lubbock, Bart., M.P., F.R.S., Mr. F. A. Abel, C.B., F.R.S., Mr. G. C. T. Bartley, Dr. Birdwood, C.S.I., Mr. F. J. Bramwell, F.R.S., Mr. E. Chadwick, C.B., Mr. Hyde Clarke, Capt. Douglas Galton, C.B., F.R.S., Mr. H. Reader Luck, Mr. Robert Rawlinson, C.B., Mr. Erasmus Wilson, F.R.S., Mr. J. A. Youl, C.M.G., with Mr. H. Trueman Wood, secretary, and Mr. H. B. Wheatley, assistant secretary.

THE CIE. DES MINES D'OR ET CANAUX D'AMADOR VOLCANO (California).—The public subscription of 5200 shares, out of 10,000 of 500 francs forming the capital stock of the company, which were offered at 600 francs, with 100 francs premium, has been largely covered. The Journal de Débats, under the signature of its financial editor—M. Jules Paton—attributes the successful floating of these shares on the French market to the fact that the Amador Volcano gravel property owned by the French Company is of great value, not only by reason of its metallic wealth, but also by its most complete hydraulic arrangements. The Messenger de Paris, L'Estafette, La France, and generally all the leading daily papers, have spoken favourably of that undertaking, and especially of the competent and distinguished scientific gentlemen who compose the board of directors of the French company. At the request of Col. Jules Barton, who, conjointly with Mr. Derbec, of San Francisco, made in 1875 a favourable report upon the Amador Volcano Hydraulic mining property, the new French company has been instructed by telegram, through the Foreign Office in Paris, the French consul in San Francisco to have a minute verification made by his lawyer of all property titles held by the Californian Company. Mr. Charles McLaughlin, who is the president of that company, and who has lately sold in Paris the remaining 5200 shares of its capital stock, has given his personal guarantee to make all titles good, and has consented not to receive any payment until a satisfactory title certificate has been received.

by the French company from the French Consul's lawyer in San Francisco.

PRINCE COMPANY (in Liquidation).—We are informed that certain statements respecting this company, to which reference was made last week, are absolutely untrue, and we regret the same were inserted. All the matters are known to the shareholders; the accounts have always been published and audited; and the untrue statements referred to seem to have had their origin in corrupt and unworthy motives.

REPORT FROM CORNWALL.

May 5.—The event of the week is once more the meeting in Dolcoath. Once again the old mine has resumed dividends, and while declaring one of 5s. per share has made a balance of profit nearly equal to 10s. There will always be hope for Cornish mining while Dolcoath is to the fore. It is a remarkable thing to be able to say, as the Chairman did, that during 30 years connection with the mine he had never heard a more favourable report. After all these centuries of working it is a remarkable thing, too, for Captain Josiah Thomas to be able to say that there has never been a better level in the mine than the present bottom level, and never such a piece of ground laid open for stoping as is now being developed between the 335 and the 352. A lode worth 100l. per fathom is enough to make the fortune of any mine, however deep, let alone that of so well managed a "bal" as Dolcoath; and, as we have said on so many occasions, this richness in depth here augurs well for the future of our deep mines generally. We may depend upon it that in this matter of depth-productiveness, other things being equal, Dolcoath is really no exception, but will be found by-and-by to indicate the rule. Nothing, however, but the most skillful management, and the adoption of the best mechanical means and appliances, would allow of these deep deposits being utilised at present prices with profit, and hence the special importance of the intention of the executive to put in a new skip-road. May we suggest, as a good subject for some member of the Mining Institute, a general paper on drawing appliances, with statistics, and especially a full set of particulars respecting our latest skip-roads.

We regard the point introduced by the Chairman, with reference to the substitution of steel stamp-heads for iron, as one of special importance, though for the present Captain Josiah Thomas was able to show that the results were hardly satisfactory. The price of steel under the new processes of manufacture is steadily coming down, and if steel rails, in spite of enhanced cost, are found more economical than iron, so assuredly will steel stamp-heads be. It occurs to us, however, that very possibly it may be found that a different shaped head may be better adapted to this substitution. There is a sweet simplicity about the section of our present stamp-heads, as a rule, that seems as if it might be improved. No doubt this problem might be partially worked out on paper, but after all it can only be satisfactorily tested by experiment.

We are no way further than before with regard to the definite prospects of the tin market, though the smelters are certainly praised neither for their wonderful keenness in scenting a temporary downward fluctuation, nor for their keeping the English tin under the mark of its foreign competitors. Mr. Pearce, speaking *ex cathedra* as Dolcoath chairman, urged with all the weight of authority what we have again and again advanced—that the depression is in part general and in part local. For the relief of the one we must look to a general revival of trade; as to the other, personally, Mr. Pearce is not at all discouraged. The great cause of the depression in Cornwall had been the influx of tin from Australia, but these mushroom crops of tin were getting rapidly exhausted. If any reliance at all was to be placed on the reports that were coming from different quarters, it was evident that the cream of the Australian tin had been taken away, and what was left, so far as he could ascertain the truth, would require considerably more labour and expense than had hitherto been the case to get at. That they would continue to receive tin from Australia for some years to come nobody could doubt, but that it could be sent on in considerable quantities at the price which had been ruling of late he thought was open to very grave question. But even if it was so Cornwall would fight them out. At any rate, old Dolcoath was capable of doing its part. The deeper the mine got the richer it was, and looking at the matter altogether he thought they had something far more permanent than anything Australia could produce. These are weighty words that do not apply to Dolcoath only, but to the tin mining of the county.

So also do Capt. Thomas's remarks with regard to the economy induced by the use of the boring machine, which, after all, is best put in his own words. "They were now doing a very important piece of work in the western part of the mine. In the 314 level west, which they were driving with the boring machine, they had driven about 180 fms. to get back under Harriet's shaft. They would rise against that shaft, and they hoped to communicate it in about six months. They would then be able to drive further west under the man-engine shaft, and rise also against that, and when this was accomplished they would be able to bring down the man-engine 60 fms. deeper than it was at present—a most important thing for the men who had to go up and down, and who would avoid the climbing of ladders for that distance. That was a piece of work which they could not have accomplished at all but for the boring machine. They would have to drive two or three levels instead of one, and it would have taken them four times as long to do; and he had no doubt that this had saved them something like 3000l." Where would our mining not be now if the boring machine had been introduced only a dozen years since?

There is no doubt that the distress in the county is gradually diminishing, and that the labours of the relief committee are as gradually lightening. Mr. Pearce is evidently inclined to doubt the value of such systems of relief, and there is no doubt there is much truth in what he said. The "pitiful beggarly" letters to which he referred are sure to be attended with some mischief, and of all things the pauperisation of a class is the most to be avoided. We cordially sympathise, therefore (though compelled by the dire logic of circumstances to admit the urgent need of such operations as those of the relief committee), with Mr. Pearce's manly appeal—"Whatever we do, do not let us pauperise our hitherto independent and self-reliant Cornishmen. Let us do what we can to promote their best interests by providing them with labour and giving them all the encouragement that it is in our power to do, but in my heart of hearts I think that this somewhat indiscriminate distribution of money is attended with some considerable evil. I know this is rather delicate ground to tread upon, but I cannot help giving utterance to views which I hold very strongly. That there is a large amount of distress prevailing no one can deny, and this distress exists not only in Cornwall, but all over the world."

In order to suit the convenience of the President, it has been arranged that the Polytechnic Exhibition shall open on Tuesday, Sept. 2, instead of August 26, as at first fixed.

As an illustration of the very wide interest that is taken in this matter, we may mention that in a copy of the Cape Times which we have received by the last mail there is a letter upwards of two columns in length from Mr. Kitto, of Rondebosch, quoting the facts of the distress, and suggesting a Government scheme for the emigration of miners to the Cape. Mr. Kitto, like a good many other people who are not fully acquainted with the conditions of colonial tin mining, values the Australian and Tasmanian competition at too high a rate, and this leads him to the conclusion thus expressed:—"Looking, then, at the case in all its bearings, I see no immediate prospect of the amelioration of the condition of the Cornish people in their own homes, to which they are naturally so much attached. Here, then, is a fine opportunity for the Government of this country to assist the Mother Country in her hour of need, not simply with a little temporary pecuniary assistance, because Cornishmen, as a rule, would rather die than receive such assistance, but by introducing a system of immigration between this country and Cornwall. It may be thought absurd to confine an emigration scheme to any particular country. And so it would under ordinary circumstances, but when I point out that it is for the purpose of relieving the people in their

distress my motive is obvious. I maintain, further, that the Government have an opportunity of introducing into this country a class of men who are, as a rule, the most frugal, temperate, and industrious men in the world. The generality of Cornishmen, although they can work at almost anything, are trained to mining from their cradle, and are generally considered the best miners in the world. I believe it is universally acknowledged that the mining interest of this splendid country has been sadly neglected. Now, if the Government were to introduce as emigrants a mining population they would be ever on the look-out for minerals, and, no matter in whatever occupation they were engaged, their natural instinct would prompt them to carefully examine and search for minerals in the different localities in which they were located, and very likely they would be the means of establishing the mining interest of this country on a basis second to none in the world. Should the Government take this matter in hand, I have no doubt but what the immigrants could be brought to this country for 9l. per head per adult, provided they were brought out in large numbers. Twenty thousand of such immigrants would be quite a godsend to South Africa at this time, and the gratitude of the people themselves for being assisted in their hour of need would be warm and lasting."

We have no reason to anticipate that this suggestion is destined to lead to any practical result, at least in the form here put forth. But the fact that it has been made and the attendant circumstances are certainly worthy of note.

One would have thought that by this time there was hardly an unfenced mine shaft left in the county. Yet a few days since at the St. Columb Petty Sessions the Deepark Lead and Iron Ore Mining Company (Limited), Newlyn East, was charged by Dr. Le Neve Foster, her Majesty's Inspector of Mines, with neglecting to properly fence 11 shafts and pits. It was shown that though the inspector gave notice in writing on Oct. 5, 1878, to fence 16 shafts, only five had been fenced on Jan. 17—the date of his second visit. The company was fined 9l. and 2l. 7s. 6d. costs; in all 11l. 7s. 6d.—Mr. J. G. Barton, of Shepherds' House, Newlyn East, lessee of North Shepherd's sett, was then charged by the same prosecutor with having neglected to fence the tops of a shaft and two large pits. The case was proved to the satisfaction of the Bench, and Mr. Barton was fined 1l. 10s. and 1l. 17s. costs; in all 3l. 7s.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

May 8.—Colliers' wages have this week been reduced in South Staffordshire 3d. per day, or stint in the Thick coal seams, and 1d. per day in the Thin coal seams. A fortnight's notice has been served upon the enginemasters for a drop of 4d. per day, leaving their wages at 3s. 2d., and other surface labourers will be reduced in proportion. Some little difficulty arose at a few of the pits in bringing about the reduction in colliers' wages, and the men at the Sandwell Park Colliery, who struck work for a day, are a conspicuous example, but the difficulty was soon over. On Wednesday afternoon a meeting took place at Dudley between the sub-committee of the Coalowners Association and representatives of the colliers to consider the proposition of the masters, that if the men would consent to work another hour a day their wages should be increased 3l. per day in the Thick coal, and 1d. per day in the Thin coal seams, instead of being reduced. The delegates said that they would give an answer in a fortnight's time after consulting the general body of workmen, but little hope is entertained of their accepting the offer. The state of the pig and finished iron trades remains as last reported.

The colliery owners of that part of South Staffordshire denominated in the operations of the Mines Drainage Commissioners as the Tipton district now know what rate they will have to pay for mines drainage purposes in that locality for the ensuing twelve months. The arbitrators have made a draft award, setting forth that the rate required will be 3d. per ton on fire-clay and limestone, and 6d. per ton on ironstone, coal, slack, and other minerals not specified. The arbitrators have carried out their intentions, shadowed forth at the public meeting held when they proposed to make the award, not to allow any graduation in consequence of the serious position of the finances of the Tipton district. The rate is to be payable in respect of all mines in the district, with the exception of a few which for special reasons are totally exempted. The arbitrators have further given notice of their intention to make a draft mines drainage award for the Bilston district. They calculate that the rate required will be 3d. per ton on ironstone, coal, slack, and other mineral not being fire-clay or limestone, and 1d. a ton on fire-clay and limestone. At the monthly meeting of the Commissioners in Wolverhampton, on Wednesday, Mr. Richard Williams, the manager of the Patent Shaft and Axletree Company, Wednesbury, raised the question whether the Commissioners could legally enforce an ungraduated rate. He contended strongly that they could not, and that if they were to pursue that course with regard to the Tipton district many mineowners would be ruined. The Chairman said that the liabilities for which the rates were to be raised had been incurred on behalf of the whole of the Tipton district, and the money having been spent must be repaid.

At a meeting of the creditors of Messrs. Nobberley and Bayley, of the Thorn's Fire-clay and Brick Works, Kingwinford, and coalmasters of Cradley Heath, Rowley, which was held on Monday last, it was shown that the total liabilities amounted to 4452l. The assets were very considerable. It was ultimately determined that the estate should be wound up in liquidation, and a trustee and committee of inspection were appointed.

The North Staffordshire coal and iron trades show no signs of improvement; orders in all departments are difficult to secure even at prices which leave little or no profit.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

May 7.—The signs of a revival in the slate trade which I lately recorded have proved to be evanescent. The working time in Merionethshire—Festiniog district—is now limited to three days a week, and it is about to be reduced to the same proportion in Carnarvonshire. The cause for this depression is to be found chiefly in the lack of building enterprise at home and abroad. Still the increasing population must eventually have houses to live in, and we may reasonably hope that after a time a revival of this important industry will take place. The limestone quarry owners complain bitterly of the state of their trade. The farmers are using but little lime, the builders less, and the iron furnaces less still. The prolongation of the winter is favourable to the sale of house coals, but prices are barely remunerative, and the trade is very limited, while competition is keen. The whole industrial horizon is dark, and it is difficult to anticipate from what quarter light may dawn. My memory goes back a long way, but I do not recollect a period of depression so long and so severe, not even in the dark days of 1845.

One cannot but wish success to the new company formed to work the Dyflife Lead Mines. That they may have a return of the old prosperity is my sincere wish; but all their expectations and plans should, as a matter of wise precaution, be based upon a much less average production of ore. I am glad to hear of discoveries at Talybont and Bodidris, two mines widely apart and different in their character, but corresponding in their necessity for better luck than they have hitherto received. It is pleasant to read of shipments of ore from Morfa Du, and I wish the same could be recorded of the Parys Mine. The controversies that have lately gathered around other mines have cooled down quite, and now we have only to patiently wait for the dividends.

The Oswestry borough surveyor, Mr. E. Bremner Smith, finding his private practice increasing so much as to require his undivided attention, has resigned his office. The authorities offer 150l. a year to a successor, who is to devote the whole of his time to the duties of his office: 110 applications have been sent in, out of which three candidates have been selected, who are Mr. Dawson, of Middlesborough; Mr. Jonghin, of St. Helens; and Mr. Hodgson, of Preston.

In consequence of the recent recommendations of the committee on tramways, it is hoped that steam-power will shortly be used on the Glyn Valley Tramway. The cutting of the first sod of the Ruthen and Carreg-y-droddion Railway has been postponed, in consequence

of the illness of the Hon. Mrs. Cornwallis West, who was to have performed the ceremony.

The mining case of Ashley v. Taylor, in connection with the East Llangynog Lead Mine, is proceeding in the law courts, and its issues will be of interest and importance to mine promoters.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

May 8.—The Newport Dock Company's general meeting was held to-day at Newport, when Mr. W. S. Cartwright occupied the chair. There was as usual no mention of any dividend, and the sum of 8260l. was ordered to stand to the credit of the general revenue account. The almost entire debenture account has been renewed at 4½ per cent. interest, but the sum of 3500l. remained to be taken up. The Chairman pointed out that compared with the half-year ending June the one concluding with December had shown a slight increase in the shipments of coal and timber made. The death of Mr. Marwood, secretary of the Taff Vale Railway Company, is announced. He had been connected with the company for upwards of a dozen years, and was 52 years of age. By the Taff Vale Railway Bill has for some days been before the House of Commons. The Committee were of opinion that with regard to the through traffic the company should have the arrangements they sought. As to the different valleys and the case of the coalowners they thought that there ought to be some clause, if the clause of the Taff Vale Company was passed, for the protection of colliery owners in these valleys, so that one valley should not have an undue advantage over the other.

A branch of the New National Bank of Wales is to be opened next week at Pontypridd.

Another body has been recovered from the Dinas pit; but so bad is the state of the workings that it is feared months must elapse before any fresh bodies can be got at. At Abercarn pit the pumps, I am informed, are kept going.

The Iron Trade has made no step in the direction of an improvement; as a matter of fact there appears to be a little more doing at some of the establishments, but there is no change to be noted in quotations. For steel a slightly downward tendency has been evinced. Clearances of iron have not been large during the week, the principal one being made to Sweden. Wages, however, are very low, and this enables masters to better fight against the smallness of quotations. The demand for railway iron must be stated as dull, and bars are not much more active, while the general remark as to pig-iron is that it is sluggish. Bessemer steel rails are in moderately good request. The Tin-Plate Trade is materially unchanged, and prices are fairly well maintained. A fire has occurred at the Pontrhydyrun Tinworks, near Pontypool, by which a considerable amount of damage was done. Notices to terminate contracts have been posted at the Llangennech Works, and after the 12th work will be carried on from the day-to-day system. There is a rumour—how true one cannot pretend to say—that the works are about to change hands.

Reductions in wages are gradually being accepted by the colliers. At the Dowlais pits the men have agreed to take a 10 per cent. decrease, and, no doubt, by doing this they will avoid a still further reduction when the sliding scale award actually comes to a termination. On the other hand, some of the men seem determined to continue their opposition, and a proposal has emanated from a few—fortunately only a few—of the colliers in the district to entirely drop work for several weeks. The project is absurd, as it would be ruinous. So bad as has trade been, for one thing, that the men, with the almost entire absence of trade organisation, could not withstand even a temporary cessation of labour; and besides, the movement could never become general, and, on the face of it, would be utterly unfair. The demand for coal has not been so good this week, and the impetus given by the strike in the North has apparently passed away. Steam qualities are not in quite such good request on foreign account, and house coals are rather dull. Patent fuel is a little more active; prices are unchanged.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

May 8.—There is nothing new to report as to lead mining in Derbyshire, which goes on much as usual, the output being kept up to the average. The production of pig has undergone no change, there being still several furnaces out of blast, and are likely to remain so until there is a considerable improvement in the trade, both as regards demand and price, for makers have had an unprofitable time. A good deal of ironstone continues to be imported from Northamptonshire, although there is plenty in different parts of the county; but it is evident that it is considered best to have a mixture of the local as well as the foreign stone. At the collieries business has been very fair for the time of year, the strike in Durham being the means of greatly improving the demand for inland coal for the London and other markets. From Clay Cross, and several other places, a large tonnage has been sent southwards over the Midland, whilst a fair quantity has been forwarded to the West. In steam coal there has been a slight improvement, but there has been no increase as regards the local consumption. A good deal, however, is being taken by some of the railway companies, for it appears that little or no coke is now used for the locomotives. Small coal does not move off any better than it did, although it is offered at a very low and unremunerative price. A little more is being done with Sheffield in coke for manufacturing purposes, but not to the extent of keeping all the ovens in full operation.

In Sheffield trade is still quiet as a rule, but some few firms are tolerably well off, there being still a fair enquiry for Bessemer rails, whilst very little is being done in those made of iron, seeing that there is not so much difference in the price of the two. Armour plates is quiet, but something is being done in those of a composite character, or steel-faced. A fair amount of business is being done in ship-plates for the North and Glasgow, but the requirements for boilers is still moderate. At the engine and machine works things are dull, and the men, as a rule, not fully employed. At some of the cutlery establishments, where the best goods are manufactured, the men have been kept going, but at the major part of them matters are quite the reverse. Several of the leading manufacturers have sent off large cases of their goods to the Exhibitions of Melbourne and Sydney, where Sheffield will show to advantage. There will be goods of almost every description in steel and iron, plain and ornamental. In one case there is a fine selection of files, from one less than a quarter of an ounce in weight, used by watchmakers, to a hand-cut rubber, measuring 4 ft. 6 in. long by more than 4 inches square, and weighing about 2½ cwt.

It was expected that by this time Mr. Ellison, the Sheffield County Court judge, who had been appointed the umpire with respect to the proposed reduction of miners' wages, would have made his award. But it appears that there is a hitch, owing to some of those acting on behalf of the men wishing to reopen the case, so as to get some fresh evidence in. If this is not conceded it is said that the men will not be bound to agree to the award. It is, however, not at all likely that the colliery owners will agree to what is asked, for it would lead to more evidence of a rebutting nature being given on their part, and so postponing the settlement of the matter for a considerable time.

In South Yorkshire the Coal Trade has been fairly maintained, being improved by the state of affairs in Durham, and no doubt so long as the strike lasts will our collieries be able to keep the men fairly employed. Prices, however, remain without any alteration, and even now are such as to leave little or no profit whatever to masters. All the disputes at the collieries have been arranged, and were the wages question settled the district would be in a better state than it has been for a long time past.

On Tuesday next a conference will commence at Barnsley, which it is expected will be attended by delegates from nearly all our coal mining districts, for the purpose of considering the advisability of closing all collieries for a month or six weeks. It is said that representatives of the Press will not be allowed to be present.

On Tuesday last a petition was filed in the Sheffield Bankruptcy Court for the liquidation of the affairs of William Atkins, of the

Reliance Steelworks, Attercliffe, steel file and saw manufacturer. The liabilities are set down at 13,000.

Advices received on Tuesday from New York state that the Baldwin Locomotive Works, Philadelphia, have nearly completed 20 large locomotives for Australian railways.

TRADE OF THE TYNE AND WEAR.

May 7.—The Steam Coal Trade continues very brisk, and all the works in Northumberland are well employed. The Dennington Colliery, which has been standing some time, is expected to be started again shortly. The miners and also the enginemen in the county are already agitating for advanced rates, but this movement is hardly to be commended, as constant work after such a long period of depression must prove agreeable to all parties. It is at all events premature to apply for advanced rates so soon after the change, especially as it is brought about to a certain extent by causes so well known, and not likely to be long continued. A meeting of the Northumberland collieryowners was held on Friday, when a letter was read from the Miners' Association asking for a meeting with them with a view to obtain a general advance of wages, owing to the alleged improvement in prices in consequence of the strike in the adjoining county. It is expected that a meeting will be arranged shortly. It will take place some day in the present week. With respect to the strike in Durham, an important meeting was held at the Coal Trade Office on Saturday, when, after much deliberation, it was resolved to appoint a committee of 14, and to give them power to negotiate with a committee of the miners. This resolution has been communicated to the Miners' Union executive, and the men will vote during the week on the question whether they adopt a similar course and appoint a committee to meet the masters, or stand out for open arbitration. This voting has been completed at some large works, and the result, it is now confidently expected, will be that the men will, by a large majority, adopt a similar course to that pursued by the masters, and it is also expected that a meeting will take place of the two committees this week, and that it may be arranged for the works to commence next Monday on the understanding that each of the parties shall abide by the decision as to prices which may be agreed upon by the joint committee.

The strike in Durham has deranged the iron trade to a considerable extent, as the monthly return for April shows. At the end of that month there were 46 furnaces going with Cleveland iron and six with hematite, &c.: total, 52. At the end of March there were 85, showing a decrease of 33. The make during the month was 111,102 tons, and compared with 134,682 tons in the previous month, shows a decrease of 23,580 tons. In North Lancashire and Cumberland the iron and steel trades are reported as considerably improved. The strike of miners in Cumberland has been settled at some places, but new strikes have occurred at other works.

The miners at the colliery of Lord Lonsdale, near Whitehaven, have now come out.

EDISON'S ELECTRIC CANDLES.

Mr. Edison's second invention patented in this country was published at the Great Seal Patent Office yesterday. It is entitled "Improvements in Lighting by Electricity." The letters patent bear date Nov. 7, 1878, and the final specification was filed on the 7th inst. by Edward Griffith Brewer, Agent, Chancery-lane, on behalf of Thomas Alva Edison, of Menlo Park, State of New Jersey, U.S. As set forth by the patentee, the special feature of the invention relates to the candle for the diffusion of the electric light. Mr. Edison's candle is in the form of a slightly tapering hollow cylinder, divided vertically, except at the upper end. By this arrangement he claims that uniformity and complete incandescence are secured, as the electric current passes up one side and down the other. At the base of the cylinder, which is enlarged for the purpose, the electric conductors are connected. A thermal circuit regulator, which has been described in an early patent recently published, is attached at the bottom of the candle, and is so arranged that if the current becomes excessive the regulator gets heated, and consequently expands so as to bring a movable spring into contact with the adjusting screw of the illuminating apparatus, thereby diverting the current and lessening its action on the light. Mr. Edison specifies the materials of composition and method of manufacturing the light-giving substance, the essential condition of which is necessarily its power to resist fusion by the heat developed in the passage of the current. "Metals or oxides of metals are made use of, which produce in a comparatively large candle sufficient resistance to render the whole incandescent. Finely divided metal or particles of metal having a high melting point are caused to adhere by earthy materials, such as magnesium or zircon oxides, or magnetic oxide of iron, or other substances that are with difficulty fused. The oxides of metals may be obtained by chemical precipitation, or otherwise, and the candle is moulded either in a dry or moist condition by pressure. The fine particles of metal may be platinum, iridium, ruthenium, or other metal that can only be melted at a high temperature. The earthy materials are infusible, such as oxide of magnesia, zirconium, lime, silica, boron, or other suitable material."

After thus enumerating the materials employed the patentee details the mode of manufacture. "In cases where these oxides or earthy materials are mixed with the fine metallic particles, such particles are thoroughly and uniformly mixed into a mass before it is moulded, and hence such particles are kept separate by the earthy materials, and cannot fuse or run together, and the metallic oxides themselves are electric conductors to a greater or less extent, and hence may, in some instances, be used without the particles of metal. In all cases the substances are moulded and pressed into shape under powerful pressure, and if the particles do not adhere together sufficiently sugar, tar, silica, or similar substances may be used in moulding the candles into shape, and these substances may be volatilised by the heat. The metallic particles are rendered highly incandescent, and the earthy substances and oxides are also rendered luminous by the passage of the electric current." Finally the patentee declares his invention "is not limited to any particular form in which the candle may be moulded or otherwise shaped, but it relates to the materials employed in such candles, whereby the mass is adapted to the passage of the electric current, and it is rendered highly luminous or incandescent by such current." In his statement of claims appended to the specification Mr. Edison sets forth as follows:—"What is claimed as the invention secured by these letters patent is that a candle or light-giving body for electric lights in which particles of metal or metallic oxides are moulded into a mass is adapted to the passage of the electric current, and made luminous by the same substantially as set forth." Drawings illustrating the form of construction and use of the apparatus accompany the specification.

IMPROVED ASPHALT MANUFACTURE.—According to the invention of Mr. V. L. DAGUZAN, of Paris, tar is poured into a cauldron or boiler, and heated until the product is completely anhydrous. Clayey or other earths which are mixed in the composition, such as marble, calcareous yellow or blue stone dust, or other analogous substances, are then sifted with care and torrefied until complete dryness takes place, and they are then slowly mixed with the coal tar; all the inconveniences attendant on great ebullition are thus greatly reduced. These two conditions being carefully attended to a very intimate cohesion is obtained between the coal tar and the inert material. During the manufacture about 1-20th part of oxide of iron is put into the boiler, silicate of potash, barytes, sulphate of lime, phosphate of lime, salts of soda, alumina, potash, manganese, and the like, or according to the density or purity of the coal tar one or several of these substances. This mixture increases the density of the product, and when it is well manufactured a phenomenon takes place—reduction in the volume, which increases the density. The manufacture is carried on in a cauldron or boiler of ordinary construction, with a mixer for stirring up the material. The most important part is the drying, the previous boiling of the coal tar, and especially the phenomenon or final result, which takes place by giving a density of from 2.3 to 2.5, and a reduction of two-thirds

on the volume, which is, the inventor believes, quite new. The materials may be employed together or separately, and the proportions varied according to circumstances.

Original Correspondence.

BWLCH UNITED MINES.

SIR,—I have been pleased to read the various letters in your valuable Journal touching on the above mines. The more so as I have myself visited the property several times when in Wales, and can add my testimony to the soundness of the undertaking. I am sure no company can be worked on a truer basis, the full amount subscribed by the shareholders going exclusively to the mines; the expenses of management being most economical. There is a fine field here for the investing public, with the known discoveries of ore at the 60 and 70; this ore rich in silver, the main shaft over 100 fathoms deep; the riches contained in the halvans from previous primitive workings, and the banks even now refusing money on deposit at 1 per cent. I can but think that the public at large ought to know more of this undertaking, when, as power comes from conviction, I am satisfied the shares will ere long attain a large and well merited premium. VERITAS.

PHOENIX COMPANY (LIMITED), IN LIQUIDATION.

SIR,—My attention has been called to an account of a meeting said to have been held, published in the *Mining Journal* of Saturday last, headed "The Phoenix Silver-Lead Mining Company, in Liquidation." I am the duly appointed liquidator of the Phoenix Company, and some time since, finding a prospectus issued of a company proposed to be formed by "Thompson and Co.," to work the Phoenix property, I wrote to them to warn them to thoroughly investigate the merits of the property and its past history before advising others to invest more money. They never replied at all to such letter. The mine was long ago abandoned, and the plant sold under the hammer. The statement made that ore can be returned at once is absurd. I believe that even the leases were given up as worthless. I find the company which they bring forward to work the property is not even registered.

Bucklersbury, May 9.

FRED. WARWICK,

Liquidator of said company.

[For remainder of Original Correspondence, see to-day's Supplement.]

MANUFACTURE OF IRON AND STEEL.

Some improvements in the Bessemer and Siemens-Martin processes of manufacturing iron and steel have been invented by Mr. S. G. THOMAS, of Battersea, which consists in working with a very basic slag. To admit of this it is necessary to make the interior of the furnace, or at least the hearth of the furnace, and all those parts which are in contact with the molten metal or slag of some refractory basic substance. For this purpose he prefers to use either highly calcined magnesian lime, bricks made from magnesian limestone mixed with a little clay, or highly aluminous limestone; this being one of the linings referred to in his provisional specification of March 6, 1868, or he uses finely ground highly magnesian limestone intimately mixed with about 8 or 10 per cent. of its weight of a solution of silicate of soda of a specific gravity of 1.4 to 1.5 rammed hard round the bottom of the furnace so as to form the hearth.

If the magnesian limestone be not naturally aluminous a little clay may be added to it and ground up with it. Aluminous limestone may also be used with silicate of soda, instead of magnesian limestone, to form the hearth of the furnace, but care must be taken that not enough alumina, or alumina and oxide of iron, is present to make the limestone fusible. Nor is it desirable that more than 7 or 8 per cent. of silica be present in the limestone used. He does not, however, confine himself to these methods of forming a basic lining.

When silica bricks, such as are now generally employed, are used for the roof of the furnace, and those parts of the sides which are not in contact with the charge, which is often a desirable course, these silica bricks should not of course be allowed to come into direct contact with the basic material of the hearth or sides, but be separated from it by a layer of plumbago, bricks, or of coke mixed with clay, or with clay and silicate of soda solution, or other non-fluxing refractory material. In order to make the slag highly basic he adds at intervals lime or limestone, and oxide of iron in quantity sufficient to prevent the percentage of silica in the slag rising at any rate above 33 per cent., and he prefers to keep it at a considerably lower point. Both the lime and oxide should be as little silicious as possible. The lime and oxide may be conveniently used in the form of a fusible mixture, such as from one and a half to two parts of lime for one of oxide of iron.

If any considerable part of the charge already consists of iron ore (as it is desirable should be the case), it will only be necessary to add lime. The character of the slag may be judged of by the workman from time to time by taking out a sample and ascertaining if it has a glassy or silicious fracture and appearance, which is to be avoided. The more phosphorus and silicon there is present in the metal used the greater will be the amount of base required to be added. It is desirable that the slag should not contain more than 25 per cent. of silica, and preferable, particularly when very phosphoretic materials are being treated, that it should contain less than 20 per cent. If it contains more than 33 per cent. only a small proportion of the phosphorus will be removed.

MOULDS AND CORES FOR CASTING STEEL.

Steel made by the open hearth furnace comes therefrom very much hotter than when melted by any other known process, Mr. GEORGE COWING, of Cleveland, Ohio, has, therefore, been induced to invent an improved mode of casting. It is on account of this intense heat of the molten steel that difficulties have arisen in casting, as the contact of the steel with the walls of the mould fuses the material of the mould and forms a flux or scoria that coats the casting and is difficult to remove. This effect takes place with all materials that have been heretofore used for moulds. Common sand, plumbago, charcoal, coke, and other materials have been tried, but the foreign matters contained in these substances are of such a nature that the successful prevention of flux or scoria has not been heretofore accomplished. The object of his invention is to construct a mould from a substance that is adapted for ordinary use as moulding material and possesses refractory qualities sufficient to successfully resist the tendency to flux when brought in contact with the hottest molten steel. According to his invention, silica is used in the construction of moulds for this purpose, as it has been discovered that pure silica with suitable binding material answers the requirements set forth, and that by its use steel castings may be produced almost or entirely free from the flux or scoria. In proportion as the silica used for moulds contains limestone, feldspar, mica, or other silicates, oxide of iron, or foreign matters of any kind, the castings will be coated as described, and sand, such as is used for moulds, contains silica more or less mingled with the substances named.

This fact, without doubt, explains the reason why it has been heretofore considered impracticable to use sand moulds or moulds made from powdered stone, old clay pots, or like material for casting steel from an open hearth furnace. In carrying out this invention it is preferred to obtain the silica from rock crystal, white pebbles, or white sand; if white pebbles are used they should first be pulverised and thoroughly freed from oxide of iron or other foreign matters. When about to be formed into moulds the silica is to be mixed with any appropriate binding material, such as molasses, sour beer, flour, or other glutinous substance, silicate of alumina, or the like, care being taken to employ no substance containing any metallic oxide or anything that might flux. A sufficient quantity of the binding material will be mixed with the pulverised silica to form a plastic mass that can be moulded, and will retain its shape after moulding. An additional advantage obtained by the application of this invention is the ability to cast mild steel

—i.e., steel having a low percentage of carbon, which cannot be done in moulds consisting of or containing plumbago, graphite, coke, or other forms of carbon without subsequent annealing. As stated before, he is aware that materials containing more or less silica have been used for moulds, but in such materials the refractory qualities of silica which render it useful for the purpose are neutralised by the other materials.

HEATING FURNACES FOR IRON AND STEEL.

For feeding or supplying fuel and heated air to iron and other metal heating or reverberatory furnaces Messrs. CAMPBELL and SUMMERHILL, of Motherwell, Lanarkshire, have just patented some important improvements. The invention relates principally to those furnaces which have the fuel fed on to angled furnace bars, either with or without horizontal furnace bars below, at or near the one side or end of the furnace where the gases from the fuel pass in over an ordinary solid or hollow flame bridge, all so as to give a more uniform supply of fuel and hot air, which, besides being more economical by consuming the smoke, also enables the workmen to regulate the heat of the furnace to that required for the time being in a more efficient manner than heretofore. And the nature and novelty of the invention consists in erecting a large hopper for containing the small coal or other fuel over the entrance to the furnace at the top of the inclined bars, close to the arched or other roof of the furnace, fitted with a sliding door or damper near the immediate entrance to the furnace below the fuel, either actuated by hand-wheel or screw gearing to regulate the supply or feeding in of fuel as required. In some cases, and for some purposes, this might be done automatically by the said damper, and gravitation of the fuel through the aperture left by it, or a slow revolving automatic feeding cylinder or vane drum might be fitted for the positive feeding and pressing in the fuel with differential speed feed motion, which could be shifted by the attendant as desired to regulate the feed of fuel and heat of the furnace.

A further improvement consists in building in fire-clay or other air-heating pipes undulating along the walls of the furnace, or in the escape-back flue of the furnace and through its floor or roof, so as to admit the air at one end from the outside, and pass it through these pipes and bridge when that is hollow, and lead it up to transverse hollow tuyer blocks built into roof of the furnace at suitable distances longitudinally, with rows of perforations along their under sides, which admit the heated air in jet streams across the whole furnace over the gases being evolved from the fuel below, so as to completely consume the gases without the formation of smoke. The large funnel-shaped hopper for the fuel would be made large enough to contain a sufficient supply of fuel for many hours work, and which may then be filled in in quantity direct from the trucks. And valves or dampers would be fitted on the entrance to these air-heating pipes or ducts, or at the entrance to the perforated tuyers, so as to regulate the amount of air passing in through them to ignite the gases; and small holes might be formed in the side of the furnace, filled up by fire-clay blocks for the easy inspection of the state of combustion and heat of the furnace, so that the furnaceman may regulate the proper supply of fuel and heated air through the tuyers at any desired part of the furnace to ensure the perfect combustion and heat desired within the furnace.

IMPROVED AMALGAMATOR.—An amalgamator constructed on a novel principle, and having a peculiar arrangement of mechanism by which an oscillating or vibratory motion is given to the amalgamated copper pans about their own axis, while at the same time they are moved in a circular path and raised or lowered, has recently been patented by Mr. CHARLES PECK, of Melrose, Massachusetts, U. S. The pans, which are concave, are provided with internal rims or ledges to prevent the contents from washing over the edges. Three or more pans are supported by short shafts journaled in an upper or swinging frame, at the lower end of which are standards from which such frame is suspended. This frame is oscillated by cranks whose shafts are connected by an inclined shaft and gear-wheels attached to the fixed framing, so that they rotate together. The support of each pan is connected with the cross-head by means of a short forked rod, which imparts to the pans an oscillating motion about their own axis as the supporting frame is moved by a gyratory motion by the cranks, and is raised and lowered at its upper end by an eccentric on the upper horizontal shaft. Each pan is provided with a sheet-iron spout, which discharges into the next below. The quicksilver readily unites with the copper to form an amalgam, which arrests the small particles of precious metal, and the escape of the quicksilver from the pan is prevented by the use of iron spouts which do not become amalgamated.

MANUFACTURE OF STEEL.—In carrying out his improvements in the manufacture of iron and steel Mr. S. G. THOMAS, of Battersea, finds that silico-aluminous magnesian limestone, containing preferably not less than 5 per cent. silica and alumina, may be advantageously used as a refractory basic material in blocks prepared by previous firing at a very high temperature. If magnesian limestone is not obtainable an aluminous non-magnesian limestone may be used, but it is inferior to the magnesian stone. Hewn quarried blocks, which should preferably be approximately square in shape and of moderate dimensions, are exposed after drying at a low temperature to an intense white heat (considerably higher than that at which fire-clay bricks are fired) in a kiln till all the silica and alumina have entered into combination. A strong refractory basic block is thus formed, which may be used with a basic cement, either with or without subsequent dressing, in lining the Bessemer converter or open-hearth steel furnaces, such as the Siemens, Pernot, and Ponsard furnaces. By their use the formation of a basic slag is facilitated. These highly-fired blocks may also be used instead of silica or fire-clay bricks in all furnaces in which a refractory basic lining material is desirable, and for the manufacture of crucibles for steel melting, which may be cut out of the blocks before or after firing.

ELECTRIC LIGHT.—With a view to the production of a steady, constant, and cheap electric light, free from the variability and the necessity for constant adjustment incident to ordinary electric lights, Mr. W. S. WILSON, of Sunderland, proposes to form the electric arc by means of a gas or vapour of sufficient conducting power, such as a metallic vapour or hydrocarbon, preferably saturated or mixed with carbon or other resisting material. These he keeps in a state of compression, preferably, hermetically sealed between two surfaces of conducting material in a transparent envelope. These two conductors are, preferably, brass tubes with water circulating within them to keep them cool, and pass through stuffing boxes, so that their distance apart, and consequently the pressure on the vapour-can be regulated by adjusting screws, springs, or otherwise. One mode of saturating the gas with carbon is to simply insert powdered or other solid carbon. One mode of circulating the water more effectually is to have two concentric tubes, the inner one opening out into the outer near the end, or a diaphragm could be used instead.

GENERAL MARKETS.—There has been a fair amount of business doing this week. Egyptians continue to attract a good deal of attention, and fluctuate considerably daily on all sorts of rumours; they have been very low during the week, but the prices to-day are not much below those of last week. Russian bonds are firmer. English railway stocks are firm, and show every inclination to rise a little if the weather would only improve. The traffic returns were not very satisfactory this week, except in one or two cases—Midland and Great Eastern. Caledonian, which have lately been very much overvalued, show an improvement of over 2 per cent for the week. Consols are rather easier, at 98½ to 98¾, owing in a great measure to realisation on the issue of several fresh loans lately.—W. H. H. WATSON, 1, St. Michael's Alley, Cornhill, E.C., May 9.

HOLLOWAY'S OINTMENT AND PILLS.—SAFELY AND SECURELY.—When the severities of winter have yielded to the genial spring invalids should make a determined effort to regain their lost health. When through confinement indoors, want of appetite, and disturbed sleep the entire system has been weakened, and the spirits have been broken down, Holloway's remedies are equal to the occasion. The Ointment rubbed over the regions of the stomach and liver, aided by the internal administration of his Pills, will rectify the digestion, regulate the bile, and purify the blood—three sanitary actions which will speedily confer renewed vigour, brace up the falling nerves, confirm the flaccid muscles, and restore to the ailing cheerfulness—that great charm of existence.

MERSEY DOCKS AND HARBOUR BOARD.

TO MANUFACTURERS OF IRON RAILS, IRON FOUNDERS, TIMBER MERCHANTS, AND OTHERS.

THE MERSEY DOCKS AND HARBOUR BOARD invite TENDERS for the following PERMANENT WAY MATERIALS—viz.:
About 1,000 TONS STEEL OR IRON RAILWAY METALS.
" 50 TONS STEEL OR IRON FISH-PLATES.
" 50 TONS CAST-IRON CHAIRS.
" 20 TONS WROUGHT-IRON SPIKES, BOLTS, and NUTS.
" 70,000 No. TREENAILS.
" 35,000 No. OAK KEYS.
" 55,000 CUBIC FEET OF BALTIMORE SLEEPERS.

Parties desirous of tendering for the whole or any portion of the above may obtain Specification and Form of Tender, and inspect samples of the materials, on presenting a written application, addressed to the Dock Engineer, Dock Yard, Coburg Dock, Liverpool, on and after Monday next, the 5th inst.
Tenders, endorsed "Tenders for Railway Materials," to be addressed to the Chairman of the Committee of Works, and sent under cover to the Dock Secretary, Revenue Buildings, Liverpool, not later than the 21st inst.
The Board do not bind themselves to accept the lowest or any Tender, and reserve the power of apportioning the several classes of materials amongst the parties tendering.

By order, EDWARD GITINS, Secretary.

Dock Office, Liverpool, May 2nd, 1879.

GUNNSLACK (CLITTERS) MINE, NEAR TAVISTOCK.

WANTED, TENDERS FOR SUPPLYING ONE CORNISH CRUSHER, 30-inch rolls, complete, and THREE 3-compartment self-acting JIGGING MACHINES, with revolving classifiers, with gear and shafting for driving the same.
Drawings and specifications may be seen at the offices of the company, on the Mine.
Tenders to be addressed to the Manager, on the Mine, on or before Wednesday, 21st May.
The company do not bind themselves to accept the lowest or any tender.

IN LIQUIDATION.

WEST GODOLPHIN MINE.

ALL CLAIMS AGAINST THIS COMPANY must be forwarded to the Liquidators, at the offices of the company, 3, Great St. Helen's, London, on or before the 14th inst., or the same CANNOT BE RECOGNISED.
(Signed) ROBERT WILSON, Liquidators.
CHARLES THOMAS, Liquidators.
May 1, 1879.

FOR SALE, or terms will be made for the working, the celebrated

SABA SULPHUR PROPERTY, SABA ISLAND, DUTCH WEST INDIES, IN ALL ABOUT NINE HUNDRED ACRES, FIVE HUNDRED ACRES FREEHOLD, FOUR HUNDRED ACRES LEASEHOLD.

The beds of ore are opened on the freehold, known as the Great Hole Estate, in the district of Hell's Gate. The adjoining leaseholds are secured as the beds extend under them, and to prevent competition. The bed opened on is within 600 ft. of the shipping place; it is from 15 to 20 ft. in thickness, and of high quality—viz., from 30 to 70 per cent.—perfectly free from deleterious matter, as arsenic, &c. A face of 200 ft. in length has been exposed, all equally rich, and the ore can be seen cropping out for fully half a mile in length. Nine cargoes shipped to America, as quarried from the cliff, gave results as follows:—

Name of vessel—Adair F. Bonny	Analysis	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00
" "	" "	44.00

The average quality of the ore raised in the richest Sicilian Mines is under 20 per cent.

The Saba property having been in litigation for four years, has prevented its being worked; but the freehold and leasehold rights have been declared by the last Appeal Court at Curaçao to be the property of HENWOOD, MAC NISH, AND CO., who invite full inspection and investigation. Further particulars can be obtained by application to—T. MAC NISH, St. Kitts, W. I.
Saba, West Indies, March 26, 1879.

OCHRE AND UMBER.

THE ADVERTISER HAS SECURED A RICH DEPOSIT OF OCHRES AND UMBERS of first-class quality. A railway passes through the deposit, and near a shipping port. Every facility for cheap working; ample water all the year through. Wanted, the assistance of a gentleman of position to bring to a profitable issue.
For particulars, &c., address to "M. P. S.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

TO MINING COMPANIES, &c.

FOR SALE (cheap), SECOND-HAND HORIZONTAL BEAM AND PORTABLE ENGINES, all sizes, suitable for Winding or Pumping. CORNISH EGG-ENDED AND VERTICAL BOILERS, PUMP LIFTS, T-BOLLS AND GEARING, PIER-HEAD STOCKS, WIRE ROPES, and every description of PLANT for MINING PURPOSES, ready for immediate delivery.
Price Lists on application to—EDWARD RATCLIFFE, ENGINEER, HAWARDEN, NEAR CHESTER.

THE SCOTTISH AUSTRALIAN MINING COMPANY (LIMITED).

Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders of the Scottish Australian Mining Company (Limited) will be HELD at the City Terminus Hotel, Cannon-street, London, on MONDAY, the 19th May instant, at Twelve o'clock at noon precisely, to receive the directors' report and accounts, declare a dividend, and transact the usual other business.
The Share Transfer Books will be closed from Monday, the 12th instant, until Monday, the 19th instant, both days inclusive.
By order of the Directors, C. GRAINGER, Secretary.
50, Old Broad-street, London, 8th May, 1879.

THE CAPE COPPER MINING COMPANY (LIMITED).

Notice is hereby given, that the ORDINARY GENERAL MEETING of the shareholders of this Company will be HELD at the Terminus Hotel, Cannon-street, in the City of London, on WEDNESDAY, the 21st day of May instant, at Two o'clock in the afternoon, to receive the reports and accounts for the year 1878, and for general purposes.
In conformity with the Articles of Association, two directors—viz., William Bevan, Esq., and Osgood Hanbury, Esq.—retire from office at the above meeting, but being eligible, offer themselves for re-election.
Robert Fletcher, Esq., having resigned the office of auditor, the directors have appointed Christopher Thomas Moore, Esq., of No. 3, Lombury, E.C., to fill the vacancy, which appointment will be submitted for confirmation.
The general meeting will have to elect an auditor for the current year, and Christopher Thomas Moore, Esq., being eligible, offers himself for re-election.
The Transfer Books will be closed from the 7th to the 21st day of May, both days inclusive.
By order of the Board, J. C. LEAVER, Secretary.
6, Queen-street-place, London, E.C., 3rd May, 1879.

BRITISH SILVER-LEAD.—The success which has attended the trials on the Main Lode, in proving rich deposits of ore, and the high opinion held of the prospects of these Mines by JOHN L. M. FRASER, Esq., Consulting Mining Engineer (14 years at the Minera Mines), ABRAHAM FRANCIS, Esq., Manager of the Gwynedd, near Mold, Capt. HENRY FRANCIS, of Llanidloes, and Capt. E. J. BURN, Oswestry, warrant the erection of Crushing Machinery, &c., and a vigorous development. The Directors will, therefore, ISSUE THREE THOUSAND SHARES, of £3 each, at par.

In order to secure an interest, early application should be made to the Company's Bankers, North and South Wales Bank, Blaenau, Merionethshire, and to the Office, 69, Hope-street, Wrexham, where all particulars may be obtained.

REVERSIBLE TRAMWAY RAILS AND CHAIRS.—According to the invention of Mr. THOMAS FLOYD, C.E., of Fleet-street, the rail may be made either solid or from two halves (duplicates) reversed to one another; in the latter case each half is formed on the meeting side with a shoulder or projection, so that when the two halves are brought together reversed to one another the shoulder or projection of one half will fold or lap over that of the other. The two halves when brought together (or the solid rail as the case may be) are in section similar to the letter H, save that the top right-hand portion and the bottom left-hand portion are provided with thickened lips or extensions to form a tread for the wheel, the bottom right-hand portion and the top left-hand portion being without the thickened lip or extension piece, and so acting as a guard rail. The chair to receive this rail is in the form of a kind of jaw, into which the rail is dropped, one side of the chair being formed at the top with a lip facing in the direction of the rail, the other side (which is slightly lower) forming a rest or support for the top thickened extension piece, which takes the weight of the vehicle travelling over it. The bottom thickened extension piece on the opposite half or side serves as a shoulder in between which and the lip on the chair a wedge may be driven, and the rail thus secured in its place.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACT, 1862, and of the CALVADNACK MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above-named company, who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required to COME IN and PROVE their SEVERAL DEBTS or CLAIMS at the Registrar's Office, Truro, on Monday, the 19th day of May instant, at Eleven o'clock in the forenoon; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof.
And for the purpose of such proof they are to attend in person, or by their solicitors or competent agents, at the time and place above mentioned.
FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, the 7th of May, 1879.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACTS, 1862 and 1867, and of the CHARLOTTE UNITED MINES (LIMITED).—TO BE SOLD, under the direction of the Registrar of the said Court, on Wednesday, the 21st day of May instant, at Eleven o'clock in the forenoon, at the CHARLOTTE UNITED MINES, in the parish of St. Agnes, within the said Stannaries, in One or more Lots, and subject to such conditions as shall be then and there stated and produced, the WHOLE of the

MINING PLANT, MACHINERY, MATERIALS, AND EFFECTS

Belonging to the said company, and being within and upon the said mines, and comprising—

ONE 36 in. cylinder PUMPING ENGINE, with ONE BOILER about 10 tons, steam-pipes, and all complete.
Two balance bobs with boxes and balance rod connections, 150 ft. shears with stays and shives, horse wheel, 50 fms. of wire rope, 50 fms. of chain, 80 fms. of 2 in. flat rods, pins and connections, double power crab winch, 40 fms. iron stave ladders, 40 fms. of ladders from engine shaft.

ONE 22 in. WINDING AND STAMPING ENGINE, 3 ft. 9 in. stroke, 2 fly-wheels 11 ft. diameter, axle for 18 heads, cams, lifters, with 8 ton BOILER complete.

Capstan stand and stays, hand jack screw and one 3 in. drop screw, carpenter's bench and chest, grinding-stone and frame, taps and plates, iron blocks, bell and stand, smith's crane and chest, a quantity of new and old iron, timber, and brick, wood houses and sheds, smith's and miners' tools, bolts and burrs, kibbles, wheelbarrows, and other articles and effects in general use in mines.

For further information, apply to the Official Liquidator of the said company, at the Stannaries Court Office, Truro; and for inspection of the said machinery, &c., to the Bailiff in charge of the mines.
HODGE, HOCKIN, AND MARRACK, Truro.
(Solicitors for the Official Liquidator.)
Dated Stannaries Court Office, Truro, May 7th, 1879.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN THE MATTER OF THE COMPANIES ACTS, 1862 and 1867, and of the OLD TINCROFT CONSOLS MINING COMPANY (LIMITED).—TO BE SOLD, under the direction of the Registrar of the said Court, on Monday, the 19th day of May instant, at Eleven o'clock in the forenoon, at the OLD TINCROFT CONSOLS MINE, in the parish of Towednack, within the said Stannaries, in One or more Lots, and subject to such conditions as shall be then and there stated and produced, all that the INTEREST of the said company, of and in the sett under which its mining operations have been carried on, together with the WHOLE of the

MINING PLANT, MACHINERY, MATERIALS, AND EFFECTS

Belonging to the said company, and being within and upon the said Mine, and comprising—

ONE 24 inch cylinder STAMPING ENGINE, 5 feet stroke, with fly wheel and 10 ton BOILER, with fittings, complete.

One stamps axle for 16 heads, lifters, cams and braces, 20 fms. 2½ in. iron flat rods, 4 2 ft. shives, 4 stands, &c., for same, angle bob with socket piece, stocks and top blocks, bishop head, braces at flat rod shaft, 23 ft. 7 in. pumps, 17 in. plunger pump with stuffing box and gland, one pole case 9 ft. long, 1 8 in. H. piece and top door, 17 in. seating, 1 7 in. windbore, 6 and 7 ft. matching pieces, 7 in. bore, about 35 fms. 8 in. pitch pine shaft rods, 4 sets of strapping plates, with bolts and burrs, staples and gland, 4 2 ft. shaft rolls, horse wheel, shaft tackle, with 24 ft. shives at engine shaft, crab winch 15 fms. of knocker line, old castings in balance bob, about 30 fms. iron stave ladders in engine shaft, horse wheel, shaft tackle and shives, about 90 fms. of horse wheel chain and kibbles, about 60 fms. 8 in. rope, 50 fms. 7 in. new ladders with stands and stays, 35 fms. 8 in. do. do., 3 round bobbles with gear work, water-wheel, 8 ft. diameter, for working round bobbles, 4 double-head frames with ladders and 3 flushts, 2 cleaning bobbles, a quantity of old cast and wrought-iron, anvil borer, steel, screwing tools and rests, 36 in. bellows, smith's and miner's tools, grinding stone, carpenter's shop and bench, wheelbarrows, large beam, scales and stand, and numerous other articles and effects in general use in mines.

The whole of the above mentioned pitwork is underground.
For full particulars of which apply to the Official Liquidator of the said company, at the Stannaries Court Office, Truro, and for inspection of the said machinery, &c., to the Bailiff in charge of the mines.
HODGE, HOCKIN, AND MARRACK, Truro.
(Solicitors for the Official Liquidator.)
Dated Stannaries Court Office, Truro, May 7th, 1879.

BOWERS' ALLERTON COLLIERIES (LIMITED), YORKSHIRE.

PURSUANT to an Order of the High Court of Justice, Chancery Division, made in the Matter of the BOWERS' ALLERTON COLLIERIES (LIMITED), with the sanction of the Master of the Rolls, Mr. JOHN HEPPER (of the firm of HEPPER and SONS), Auctioneer, Leeds, WILL SELL, BY AUCTION, on Wednesday, the 21st day of May, 1879, at Five o'clock in the afternoon precisely, at Messrs. HEPPER and SONS' Estate Sale Room, East Parade, Leeds, the

VALUABLE LEASEHOLD COLLIERIES, FIXED AND MOVEABLE PLANT, BUILDINGS, LOCOMOTIVES, ROLLING STOCK, SEA AND CANAL BOATS, TOOLS, RAILWAYS, TRAMWAYS,

MATERIALS AND EFFECTS, belonging to the above company, and situate at Great and Little Preston Astley and Swellington, about 7 miles from Leeds, 2½ miles from the Woodhouse Station, 2 miles from the Methley Station on the Midland Railway, and close to the North Eastern Company's Railway from Leeds to Castleford and Pontefract, to which there are sidings, and by which there is a communication with the Great Northern System.

Index plan and full detailed particulars and conditions of sale are in course of preparation, and may be had fourteen days prior to the sale of Messrs. PATTISON, Wigg, and Co., 11, Queen Victoria-street, London; of Messrs. DIBB and Co., Solicitors, Leeds; of Messrs. LAMBERT, PETCH, and SHAKESPEAR, 8, John-street, Bedford-row, London; of GEORGE ARMSTRONG, Esq., Solicitor, Newcastle-on-Tyne; of Messrs. SHUM, CROSSMAN, and Co., 16, Theobald's-road, Bedford-row, London; of Messrs. HEPPER and SONS, Auctioneers, Leeds; and of the Official Liquidators of the company, Boar-lane, Leeds.

DEVON AND CORNWALL RAILWAY (EXTENSION TO HOLSWORTHY).

IMPORTANT SALE OF CONTRACTORS' PLANT AND MACHINERY.

MR. RYMILL has received instructions from Mr. R. T. RELF, the contractor, to SELL, BY AUCTION, at Okehampton and Halwill, on Tuesday, May 20th, and following day, FOUR VALUABLE LOCOMOTIVES, PORTABLE ENGINES, and other MACHINERY; 200 TONS OF CONTRACTORS' RAILS; 200 TIP WAGONS; and EXPENSIVE PLANT, employed in the construction of the above Extension. See detailed advertisements.
Catalogues of the Auctioneer, Repository, Barbican, London.

PRELIMINARY ANNOUNCEMENT.

IN THE MONTH OF MAY NEXT WILL BE OFFERED FOR SALE, BY AUCTION, in One Lot, as a going concern, the ESTATE and INTEREST of the

STAND LANE COLLIERY COMPANY (LIMITED).

In the MINES of COAL, SHAFTS, and UNDERGROUND WORKINGS, held by the company of the Earl of Derby, in the township of Pilkington, in the county of Lancaster, together with the

STEAM ENGINES, STRAM BOILERS, TUBS, RAILS, RAILWAY WAGONS, HORSES, CARS

And all other the property and effects of the company, incidental to the working of their colliery.

In the meantime all necessary information may be had on application to ADAM MURRAY, Esq., the Liquidator acting in the voluntary winding-up of the company; or to Messrs. T. A. and J. GRUNDY and Co., Solicitors, both of No. 104, King-street, Manchester.

LAND AND WORKS TO LET, suitable for CHEMICAL WORKS, PAPER WORKS, IRON, TIN, or COPPER WORKS, or any Works producing noxious smoke. Rent moderate.

Coal of every description abundant from 4s. per ton. Good supply of water. Building stones plentiful.
Canal and railway communication with Swansea and Neath Harbour.
Apply to RICHARD HALL and SONS, 37, Great George-street, Westminster; and Mr. THOMAS WILLIAMS, Aberdualais, Neath, Glamorganshire.

FOR SALE, A NEW 70 inch CYLINDER CORNISH BEAM PUMPING ENGINE, 10 ft. stroke in cylinder and 9 ft. in the shaft, with steam case, metallic piston, and wrought gudgeon. The false cover, perpendicular pipes, weigh posts, working and nozzle gear all fitted bright. A strong substantial well made engine, complete, including cast-iron casings for top and bottom nozzles with bright covers, holding down bolts and wrought-iron caps and bolts for connection to main rod.

Apply to WILLIAMS'S PNEUMATIC FOUNDRY COMPANY, Perranarworthal, Cornwall.
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HORIZONTAL ENGINE, 15-horse power, strong, and well-finished, with fly-wheel, wrought crank shaft 5 in. diameter, and massive box bed; suitable for winding or general purposes; quite new. Price £70.

HORIZONTAL ENGINE, 8 in. cylinder, beautiful and most improved design, new and complete, with pump and governor. £38.

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18 H.P. PORTABLE STEAM ENGINE, with link motion, reversing gear, ready for delivery; also gear to wind and pump.

A 9-h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-h.p. PORTABLE MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

Apply to—BARROWS AND STEWART, ENGINEERS, BANBURY.

22 IN. AIR COMPRESSOR, on massive bed-plate, with slide bars, connecting rods, and crank, FOR SALE (CHEAP). Improved AIR COMPRESSING ENGINES, with 12 and 9 in. cylinders. Also PAIR OF 9 inch WINDING ENGINES complete, with 4 feet drum, geared 3 to 1.

Apply to—WARSOP AND HILL, ENGINEERS, NOTTINGHAM.

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FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES, CONTRACTORS, IRONWORKS, MANUFACTORIES, &c., from a superior specification, equal to their first-class Railway Engines, and special; adapted to sharp curves and heavy gradients, may always be had at a short notice from—

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MANUFACTURERS also of IRONWORK, WHEELS, and AXLES.
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GEOLOGY.—In the Preface to the Student's Elements of Geology, by Sir CHARLES LYELL, price 9s., he says—"As it is impossible to enable the reader to recognise rocks and minerals at sight by aid of verbal descriptions or figures, he will do well to obtain well-arranged collections of specimens, such as may be procured from Mr. TENNANT (149, Strand), Teacher of Mineralogy at King's College, London." These collections are supplied on the following terms, in plain mahogany cabinets:—

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(EST. 1764.)

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(LIMITED),
149, WEST GEORGE STREET, GLASGOW,
FORMERLY
THE BRITISH DYNAMITE COMPANY
(LIMITED).

NOTICE IS HEREBY GIVEN, that in the Cause of the BRITISH DYNAMITE COMPANY (LIMITED) and NOBEL'S EXPLOSIVES COMPANY (LIMITED), versus FRANCIS KREBS and others, that the Right Honourable the House of Lords have, upon the appeal of the plaintiff companies, reversed the decision of the Court of Appeal below, and upheld the judgment of Mr. Justice FAY, given upon the 15th of June, 1877, whereby he awarded to the plaintiff companies an injunction to restrain the defendant, FRANCIS KREBS and others, during such time as certain Lettels Patent of the 7th of May, 1867, should remain in force, from Manufacturing or Selling in this country any Lithofracteur or any compound consisting of or containing Nitroglycerine absorbed into any porous unexplosive substance.

Notice is hereby further given, that any person infringing such Patent, or in any way Importing, Purchasing, Selling, Dealing in or Using any Lithofracteur or any other compound consisting of or containing Nitroglycerine absorbed into any porous unexplosive substance will, immediately upon such fact coming to the knowledge of the plaintiff companies or their agents, be proceeded against, and such relief sought as the said companies may be advised.

J. AND R. GOLE, 4, Lime-street, London, E.C.,
Solicitors to the above-named companies.

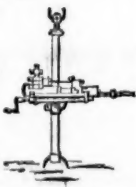
Dated this 8th day of April, 1879.

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The UNDERSIGNED has succeeded in securing the right of working, and an interest in, a COPPER MINE, which by actual development and test has proved capable of an almost unlimited production of ore, containing in the great average more than 10 per cent. copper. He has ready on the ground 1000 tons of ore, a good steam-engine and boiler, a good blower, 7000 bushel of charcoal, and all the material requisite for the construction of furnaces, and a good house to live in. Has a coal mine of his own at eight miles distance, and the right for timber on a large tract of land, and can turn out copper in less than a month, at a cost of \$150 per ton, including freight to New York. But he desires, for two good reasons, a PARTNER:—

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Mr. B. M. MONTGOMERY of this Journal, will on personal application give some more particulars, and is also authorised to select among applicants.
No technical education is required, but a gentleman of commercial ability would be preferred. No time should be lost in making application, as the selection will be telegraphed within a few days.

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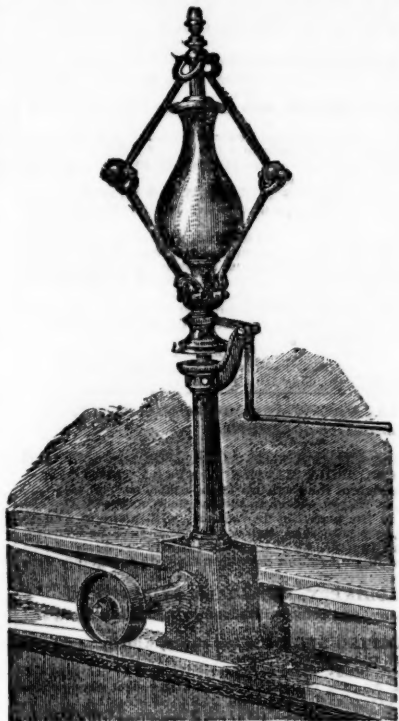
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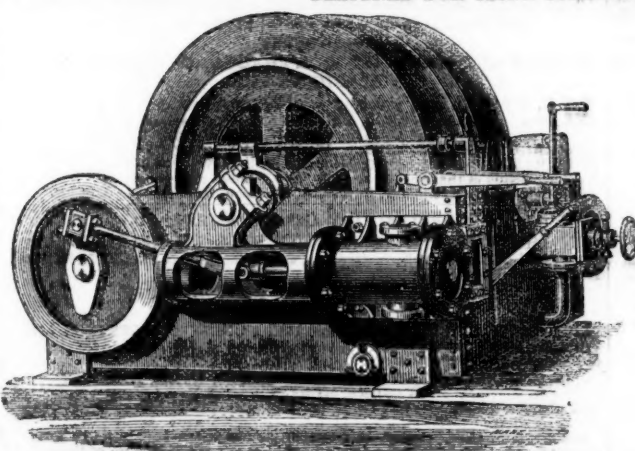
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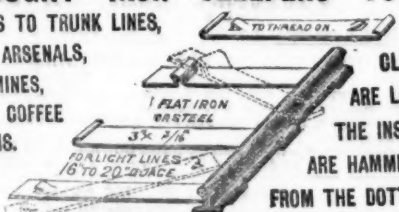


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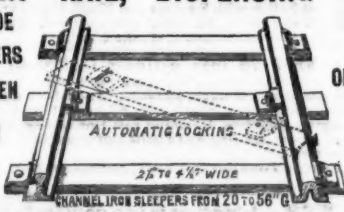
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THE INSIDE SLEEPERS

ARE HAMMERED UP AS

FROM THE DOTTED LINES.



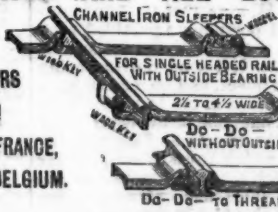
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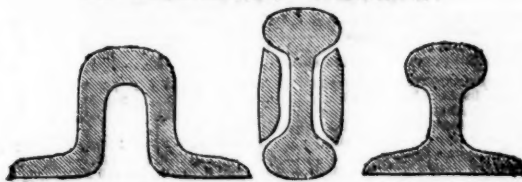
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15	Albion Steel and Wire Co. [L.]	14 0 0	—
5	Asahi Colliery Co. [L.]	5 0 0	2½ 3
100	Ashbury Co. [L.]	90 0 0	60 35
3	Bagnall, John and Sons [L.]	3 0 0	¾ ¾
10	Benhar Coal Co. [L.]	10 0 0	¾ ¾
10	Bilbao Iron Ore Co. [L.]	10 0 0	18 30
5	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	1½ 3
4	Blaen Cwmab Coal Co. [L.]	4 0 0	—
50	Blaenavon Iron and Steel Co. [L.]	50 0 0	—
100	Boickow, Vaughan, and Co. [L.]	55 0 0	4½ 5½ pm
50	Britannia Iron Works [L.]	50 0 0	—
50	Brown, Bailey, and Dixon [L.]	40 0 0	10 9
100	Brown, John, and Co. [L.]	70 0 0	25 24
3	Cakemore, Casway, Grn., &c., ord. sh.	3 0 0	3½ 3½
3	Ditto (7½ cent. pref. shares)	3 0 0	3½
100	Cammell and Co. [L.]	90 0 0	18 17
20	Cannock and Huntington [L.]	10 0 0	9 8½
10	Cardiff & Swansea St. Coal Co. [L.]	10 0 0	¾ 1½
10	Cardigan Steel and Wire Co. [L.]	10 0 0	—
10	Central Swedish Iron and Steel [L.]	10 0 0	1 3
5	Chapel House Colliery	5 0 0	1 1½
5	Charlton Iron Co. [L.]	50 0 0	8 10
10	Cherbury Iron Co. [L.]	10 0 0	5 10
10	Chillingham Iron Co. [L.]	10 0 0	1½ 2½
1	Consent Iron Co. [L.]	7 10 0	8½ 9
1	Consent Spanish Ore Co. [L.]	45 0 0	¾ ¾
50	Cooke, William, and Co. [L.]	12 0 0	48 34
20	Darlington Iron Co. [L.]	22 0 0	10 ¾
50	Davy Brothers [L.]	30 0 0	36 36
5	Diamond Fuel Co. [L.]	5 0 0	¾ ¾
25	Edw. Vale Co. [L.]	30 0 0	17 16
100	Fox, Samuel, and Co. [L.]	90 0 0	25 30
10	General Mining Ass. [L.] (\$1 returned)	9 0 0	4 5
5	Great Western Coal Co. [L.]	5 0 0	—
3	Gwynn's Colliery Co. [L.]	3 0 0	—
18	Hopkins, Gilkes, and Co. [L.]	13 0 0	11½ 11
50	Knowles, Andrew, and Sons [L.]	17 0 0	10 9
10	Llany Hall Coal, Iron, & Firebrick [L.]	10 0 0	5 4
5	Llittledan Woodside Coll. Co. [L.]	5 0 0	—
50	Llynvi, Ogmore, & Tondou Co. [L.]	50 0 0	5 5½
10	Lydney and Wigorn Iron Ore [L.]	8 0 0	9 8
10	Marbella Iron Ore Co. [L.]	10 0 0	9½ 9
5	Mersey Steel and Iron Co. [L.]	5 0 0	9 9
10	Midland Iron Co. [L.]	5 0 0	1½ 1
5	Mold Argued Colliery Co. [L.]	5 0 0	4 3½
10	Monkland Iron and Coal Co. [L.]	10 0 0	9½ 9½
5	Mynydd Iron Ore [L.]	5 0 0	2½ 2½
100	Nant-y-Gio and Blaenau (8 p.c. pref.)	100 0 0	13 14
50	Newcastle Iron and Steel [L.]	50 0 0	1½ 1½
20	New Sharlston Collieries [L.]	20 0 0	2½ 2½
10	Newport Abercrom Coal Co. [L.]	10 0 0	4s. 5s.
10	Northampton Coal, Iron & Wagon [L.]	10 0 0	—
10	Northfield Iron Co. [L.]	8 10 0	8½ 7½
1	Northon Green Coal Co. [L.]	1 0 0	—
25	Palmer's Shipbuilding and Iron [L.]	25 0 0	15 14
100	Partridge Iron Co. [L.]	65 0 0	22 31
20	Patent Nut and Bolt Co. [L.]	14 0 0	5½ 6
20	Patent Shaft and Axletree [L.]	10 0 0	1 ¾
20	Pellais Coal and Iron [L.]	17 10 0	11 10
50	Phoenix Bessemer Co. [L.]	40 0 0	—
50	Rhymney Iron Co. [L.]	50 0 0	16½ 17½
10	Sandwell Park Colliery Co. [L.]	10 0 0	13½ 14½
10	Ditto New	5 0 0	2 2½ pm
100	Shotts Iron Co. [L.]	100 0 0	55 50
100	Sheepbridge Iron and Coal [L.]	50 0 0	47½ 45
50	Shotton & Dwyer St. & Iron [L.]	50 0 0	28 27
20	Sikron Ironworks [L.]	20 0 0	16 15½
50	Somerostron Iron Co. [L.]	50 0 0	—
25	South Wales Coal Co. [L.]	25 0 0	3 4
100	Staveley Iron and Coal Co. [L.]	50 0 0	7 5
100	Ditto ditto New	10 0 0	¾ ¾
10	Swansea Valley Steam Coll. Co. [L.]	8 0 0	—
100	Thames Iron Company	100 0 0	—
50	Tredgar Iron and Coal Co. [L.]	50 0 0	18 18
20	Ditto B. & S. shares	20 0 0	12 13
20	Ulverston Mining Co. [L.]	14 0 0	7 5
10	Vancouver Coal [L.]	8 0 0	3½ 2½
100	Vickers, Sons, & Co. [L.]	100 0 0	1 2
50	Welsh Ironworks Co. [L.]	50 0 0	—
25	W. Uumberland I. and Steel [L.]	20 0 0	15 13
10	West Mostyn Coal [L.] (12 p.c. pref.)	10 0 0	—
5	West Swansea Colliery Co. [L.]	5 0 0	—
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100	Wigan and Whiston Coal Co. [L.]	70 0 0	—
100	Wigan Coal and Iron Co. [L.]	15 0 0	—

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.].....	10	0 0..	13 1/2	13	
10	Ditto, 2nd issue.....	4	0 0..	11 1/2	13	pm
10	Ditto, pref., 6 per cent.....	10	0 0..	11 1/2	13	pm
20	British Wagon Co. [L.].....	10	0 0..	13 1/2	15 1/2	pm
10	Gloucester.....	10	0 0..	9 1/2	9 1/2	
10	Ditto, 5th issue.....	5	0 0..	3 1/2	3 1/2	dis
10	Met. Rail. Car. and Wagon Co. [L.]..	5	0 0..	1 1/2	3	pm
5	Ditto, pref., 6 per cent.....	3	0 0..	1 1/2	3 1/2	pm
10	Midland.....	10	0 0..	7	7 1/2	
20	North Central Wagon Co.	20	0 0..	19	20	
5	Rail. Car. [L.] (Oldbury).....	5	0 0..	1 1/2	1	dis
5	Ditto, pref., 6 per cent.....	5	0 0..	1	3/4	dis
20	Sheffield Wagon Co. [L.].....	15	0 0..	3 1/2	3 1/2	pm
10	Yorkshire Wagon Co. [L.].....	10	0 0..	3 1/2	3 1/2	pm

TELEGRAPH COMPANIES.

10. Anglo-American	100	0 0...	45%	58
20 Brazilian Submarine	10	0 0...	8%	6%
30 Direct United States Cable	20	0 0...	10%	11
40 Eastern	10	8 0...	7%	7%
50 East. Exten., Australia and China...	10	0 0...	7%	7%
60 Great Northern	10	0 0...	8%	8%
70 Indo-European	25	0 0...	8%	21%
80 International Extension	10	0 0...	2%	10
90 Reuters	8	0 0...	0%	8
100 Submarine	100	0 0...	230	230
10 West India and Panama	10	0 0...	1%	1%
20 Western and Brazilian	10	0 0...	3%	3%
100 Western Union, 7 per cent. Mort. Bonds \$1000	111	111	111	111

MISCELLANEOUS.

Atlantic and Great Western Leased	100	0 0..	\$7	59
Lines, Rental Trust	100	0 0..	89	91
Australian Agricultural	21	10 0..	89	91
Austral. Mort. Land and Finance [L.]	8	0 0..	5	pm
Avoidse Engine [L.]	7	0 0..	8	dis
Baltimore and Ohio, 6 per cent.	100	0 0..	109	111
Brighton Aquarium [L.]	10	0 0..	6 1/2	7 1/2
City of New Jersey Con. Mort.	100	0 0..	92	94
City of Pacific Calif. Mort.	100	0 0..	114	115
City of London Real Property [L.] ..	12	0 0..	3 1/2	3 pm
Diamond Rock Boring	4	10 0..	3 1/2	3 1/2 dis
English and Foreign Credit	8	0 0..	—	—
Fore Street Warehouse [L.]	14	0 0..	6 1/2	7 1/2 pm
Foster, Porter, and Co. [L.]	10	10 0..	17	18
Gen. Phos. & Chem. Works Co. [L.]	8	0 0..	—	—
Greenhill [L.]	1	0 0..	—	—
Kitt Hill Tunnel [L.]	1	0 0..	—	—
Hudson's Bay Company	17	0 0..	14 1/2	14 1/2
Huntington Copper and Sul. Co. ...	9	0 0..	—	—
Illinois Central, \$100 shares	100	0 0..	83	90
Illinois & St. Louis Bridge	100	0 0..	80	82
Illinois & Mexico, 7 per cent.	100	0 0..	43	48
Illinois Cent. Sinking Fund, 5 p. cent.	100	0 0..	103	105
Ditto, 6 per cent.	100	0 0..	113	114
Imperial Credit [L.]	7	10 0..	7 1/2	7 1/2
Ditto, Surplus Certificate	—	—	6 1/2	6 1/2
Lehigh Val. Con. Mort., A. & 6 p. cent.	170	0 0..	108	108
Milner's Safe [L.]	10	0 0..	7	8
National Discount [L.]	8	0 0..	5 1/2	5 1/2
N. Cent. Rail. Con. Mort., 6 per cent.	10	0 0..	94	97
Pawson and Co. [L.]	50	0 0..	5 1/2	5 1/2 par
Peninsular and Oriental Steam	50	0 0..	80	80
Pers. Gen. Mort., 6 p. cent.	100	0 0..	115	117
Ditto, Con. Sink. Fund, 6 p. ct., 1908	100	0 0..	108	108
Scottish Aust. Investment Company	100	0 0..	105	106
Ditto, 6 per cent. Preference	100	0 0..	125	130
Suez Canal shares	20	0 0..	—	—
Telegraph Construc. & Mainte. [L.]	12	0 0..	80	80 1/2
Ditto, Second Bonus Three per Cent.	8	0 0..	2 1/2	2 1/2
Tharvis Sulphur and Copper Co.	10	0 0..	113	115
Union Pacific Gen. Mort., 6 p. cent.	100	0 0..	113	115
Ditto, Con. Sinking Railway, 1st Mort.	100	0 0..	113	115
West of England Compressed Peat ...	5	0 0..	—	—
Ditto	2	0 0..	—	—

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FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND SECURITIES

	Closing Prices			Closing Prices	
Bolivian, 1869, 5 per cent.	77½	78¼	Foreign and Col. Gov. Trust, 6 p. c.t..	63	65
Argentine, 6 per cent. Bond Com. Cert.	30	22	Do., 6 per cent., 2d issue	48	53
Brazilian, 1865, 5 per cent.	90	92	Do., 6 per cent., 3d issue	54	60
Chilian, 1866, 7 per cent.	78	80	Do., 1872, 4th issue	53	62
City of Providence, 5 p.c coupon bonds	101	103	Do., 1875, 5th issue	59	63
Egyptian, Gov. preference	61	64	Perry's Bds., 1870, 6 per cent.	12½	13
Do., unified debt, scrip	49	41	Do., 1877, 6 per cent.	10½	10¾
Do., 7 per cent. M.K.L.	68	68	Russian, 5½ per cent. L.	100	103
Do., 7 per cent. guaranteed	70	75	Spanish, Quakivler, Mort., 5 p. c.	100	102
Do., K. Daira Sanjak	44	46	United States Mort., 6 per cent. com.	195	197

* Limited Liability Companies; † quoted on the Stock Exchange;
‡ have paid dividends.